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# EXPORT OPPORTUNITIES FOR VIETNAM AGRICULTURAL PRODUCTS IN THE UNITED STATES



International Development Center • Economic Research Service  
U.S. Department of Agriculture cooperating with U.S. Agency for International Development  
and the Vietnam Ministry of Agriculture and Land Development

## ABSTRACT

Export potentials for Vietnamese fish, forestry, and agricultural products are being measured in a series of U.S. Department of Agriculture/U.S. Agency for International Development studies. This report discusses potential markets in the United States for spices, canned tropical fruit and vegetables, tea, coffee, pork, and sugar.

Vietnam products having the greatest opportunity in the U.S. processed food market are cassia (cinnamon), black tea, and canned oriental specialty foods (e.g., bamboo shoots and water chestnuts). All opportunities are predicated on three main requirements: the Vietnamese product must be top quality, offered at a competitive price, and regularly available to the U.S. buyer.

The U.S. Sugar Act and its quota system pose a barrier to Vietnam's exporting sugar to the United States. Likewise, U.S. Government sanitation regulations all but eliminate the export potential for Vietnam's canned, or otherwise processed, pork.

Keywords: South Vietnam, United States, exports, foreign trade, developing country, technical assistance, agricultural products.

# EXPORT OPPORTUNITIES FOR VIETNAM AGRICULTURAL PRODUCTS IN THE UNITED STATES

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## PREFACE

This study evaluates the export potential for selected Vietnam agricultural products in the United States. It is one in a series of studies being conducted to assess Vietnam's export opportunities in international markets.

Findings of these studies contribute to an informative base to guide officials responsible for planning and implementing Vietnam's future agricultural production and marketing policies. Direct participation in these studies by Vietnamese government officials provides firsthand observation of international markets and trading practices and identifies research procedures and programs that must be implemented for a continuing and accurate evaluation of the export potential for Vietnam agricultural products.

This series of market export studies is being conducted by the Economic Research Service, U.S. Department of Agriculture, in cooperation with the U.S. Agency for International Development and the Ministry of Agriculture and Land Development of the Government of Vietnam under PASA No. VN(AJ) 103-72. Mr. Shelby A. Robert, USDA advisor with USAID Assistant Director for Food and Agriculture (ADFA), Saigon, developed and implemented this series of market export studies as part of an overall planning program for the future of Vietnam's agricultural sector. Dr. William S. Hoofnagle, Economic Research Service, USDA, is coordinator of the studies.

Personnel of the Marketing Economics Division, Economic Research Service, USDA, played a major role in planning and directing the study and developing this report. Members of the Vietnamese marketing team participated in the data collection, analysis, and report preparation. The staff of the USAID/ADFA Mission to Vietnam and officials of Vietnam's Ministry of Agriculture and Land Development provided valuable assistance in identifying Vietnam's production and marketing capabilities and specific products which appeared to have export potential.





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## SUMMARY AND CONCLUSIONS

Following 4 weeks of discussions with U.S. Government and food industry leaders, three Vietnamese trade specialists and three U.S. Department of Agriculture marketing advisors appraised the potential U.S. market for a selected group of Vietnamese agricultural products. The study was sponsored by the U.S. Agency for International Development.

It would be premature to quantify the degree of interest by U.S. tradesmen in any of the products studied. Consequently, the report notes only published statistics and industry opinion to support statements of product interest.

Because of the U.S. Sugar Act and its quota system, the economics of sugar exports to the United States is academic. If Vietnam were to obtain a quota, she could sell to the United States; without a quota, she could not. The question is not one of economics but one of politics, and no attempt has been made to answer the question through this study.

U.S. Government sanitation regulations make the export potential for Vietnam's canned, or otherwise processed, pork nearly zero.

Scale economies and transport advantages of other countries make both fresh and canned pineapple and papaya exports questionable. Both are available from a relatively nearby source (Hawaii), for example.

Traditional trading arrangements and satisfaction with current sources and prices work against Vietnam's chances of breaking into the U.S. market for nutmeg, ginger, and coffee.

Simple lack of familiarity among consumers appears to be the major problem in breaking into the U.S. market with such exotic fruits as lychee and longan.

The most promising opportunities for Vietnam appear to be in cassia (or cinnamon), black tea, and canned water chestnuts and bamboo shoots for the growing oriental foods market in the United States. All possibilities in the U.S. market are predicated on three main requirements:

- (1) Good quality.
- (2) Stable supply.
- (3) Competitive price.

Without these three prerequisites, Vietnam could not expect any great interest in trade from the U.S. specialty foods and spice industries.

Other products which were suggested by members of U.S. industry as having potential outlets included:

- (a) Dried or powdered mushrooms.
- (b) Cloves.
- (c) Frozen or dry snow peas.
- (d) Macadamia nuts.
- (e) Mung beans.

- (f) Fruit purees (e.g., papaya, mango, guava).
- (g) Papain.

These products were mentioned with no real knowledge of whether they could be successfully cultivated in Vietnam. Respondents simply felt that the climate and soil conditions of Vietnam might support these crops, all of which fell somewhat short of world demand at the present time. No statistics on these products are presented in this report.

Food trade fairs and food industry conventions are held periodically in the United States. These would be a logical place to display Vietnamese products. A schedule of these meetings may be obtained from U.S. food industry trade organizations. (See appendices.)

## INTRODUCTION

From February 12 to March 12, 1973, a Vietnam team composed of Messrs. Thang, Hien, and Mai, assisted by Messrs. Linstrom, Liu, and Powell from the U.S. Department of Agriculture (USDA), examined the potential U.S. market for selected Vietnam agricultural products. Mrs. Anne McClelland, U.S. Agency for International Development (USAID/Saigon), also participated in some of the data collection and report writing. The study was sponsored by USAID.

The first week in the United States was devoted to courtesy calls to the Vietnamese Embassy and U.S. Government officials, visits to large grocery chain distribution centers and retail outlets in the Washington, D.C., area, and a review of the overall U.S. economy and food purchase and consumption trends with the staff of the Marketing Economics Division, Economic Research Service (ERS), USDA.

From February 16 to March 6, 1973, the Vietnamese/USDA group personally contacted nearly 40 importers, agents, brokers, processors, and port authorities in 12 U.S. cities to obtain information on government regulations, trade practices, current sources of supply, price patterns, packaging trends, and interest in Vietnam as a source of supply for selected processed agricultural products. (Appendix A)

March 7 through 12 was used for analyzing data, preparing a chronology of activities, and drafting a preliminary report.

## OBJECTIVES AND METHODOLOGY

The U.S. market potentials study was designed to obtain and analyze information which would assist the Government of Vietnam (GVN) and independent traders in identifying the most promising Vietnamese agricultural products for exportation to the United States during the next 5 years. Another objective was to provide the participating GVN officials, who have responsibility for developing and implementing agricultural policy and programs, with some personal insights to the U.S. import market. These officials were able, through direct contact with U.S. industry, to identify data sources, determine additional information needs, and pinpoint at least some of the requirements for implementing and maintaining an effective program to develop an agricultural export market in the United States.

Production and commodity experts in Vietnam (from both GVN and USAID) identified a sizable number of processed agricultural products as export possibilities. Study and consultation among production and marketing specialists from both the Vietnamese and U.S. Governments eventually reduced this list to the following processed, or partially processed, products:

- Pineapple
- Papaya
- Longan
- Lychee
- Bamboo shoots



Water chestnuts  
Cassia/cinnamon  
Black pepper  
Nutmeg  
Ginger  
Canned pork  
Coffee  
Tea  
Sugar

For the obvious reasons of distance and U.S. Government inspection and quarantine regulations, fresh agricultural products such as fruits and vegetables were not studied.

Much material on official regulations (from USDA's Animal and Plant Health Inspection Service and the Health, Education, and Welfare Department's Food and Drug Administration), import duties, and trade statistics was collected during this study. Most of this material has been forwarded to Saigon and should be available through the Vietnamese National Export Development Council, the Ministry of Agriculture and Land Development, or the USAID/ADFA office.

#### IMPORT REGULATIONS

Exporters to the United States must comply with certain U.S. regulations. Goods are subject to U.S. import quotas and duties as well as inspection under USDA's plant protection and quarantine programs. In addition, they must conform to the U.S. Food, Drug, and Cosmetic Act.

#### QUOTAS AND IMPORT DUTIES

Except for sugar, none of the products studied are traded under a quota system in the United States. Details on the U.S. Sugar Act will be found in the sugar discussions later in this report.

All of the spices studied--cassia/cinnamon, black pepper, ginger, and nutmeg--may enter the United States duty free in their unground state. In ground form, all carry a full-rate duty of 1 to 1.5 cents per pound (Table 1). Crude or prepared tea is a duty free commodity, as is coffee in either its crude, roasted, or ground form.

Depending on whether it is a full-rate or preferentially-treated import, processed pineapple is subject to a 1 to 2 cents per pound duty. Cooked, packed pork is subject to a 2.6 to 3 cents per pound import duty. Water chestnuts and bamboo shoots carry a duty of 17.5 percent ad valorem.

Table 1.--United States: Rates of import duties for specified condiments and flavoring materials in effect as of January 1, 1972

TSUSA- Tariff No.	Commodity	Rates of duty	
		A <u>1/</u>	B <u>2/</u>
	Cassia:		
161.13	Not ground.....	Free	Free
161.15	Ground.....	1.5¢/lb.	5¢/lb.
	Ginger (not candied or pre- served):		
161.35	Not ground.....	Free	Free
161.37	Ground.....	1¢/lb.	5¢/lb.
	Nutmeg:		
161.63	Not ground.....	Free	Free
161.65	Ground.....	1.5¢/lb.	5¢/lb.
	Pepper, black or white:		
161.77	Not ground.....	Free	Free
161.79	Ground.....	1.5¢/lb.	5¢/lb.

1/ Column A rates applicable for all countries except those listed under footnote 2.

2/ Column B rates applicable for products of Communist areas, which include the following: Albania, Bulgaria, People's Republic of China, Cuba, Czechoslovakia, East Germany, Hungary, Indochina (parts under Communist control), North Korea, Mongolian Republic, Romania, Tibet, and the USSR.

Source: Foreign Agricultural Service .

#### USDA PLANT PROTECTION AND QUARANTINE PROGRAMS

All imported agricultural commodities and some processed food products are subject to inspection by USDA's Animal and Plant Health Inspection Service (APHIS). The following regulations affect the potential Vietnam exports:

<u>Commodity</u>	<u>Status or Action Required</u>
(1) <u>Fresh</u> papaya, mango, and avocado	All are now prohibited because of insect pests. However, prospective importers may apply to APHIS, USDA, Room 635, CB-1, Hyattsville, Maryland 20782, for possible future permits (Appendix B).
(2) <u>Dried</u> spices, tea, and coffee beans for roasting	No import permit or certification required. On inspection at port of entry must be found free from insect pests and diseases. Coffee beans are <u>not</u> permitted entry to Hawaii and Puerto Rico.

- (3) Frozen fruits and vegetables May enter under permit, except for mangoes with seeds, citrus with peel, and black currants. Must be quick frozen and not above 20° F. at time of entry to the United States.
- (4) Canned pork Product must originate in a processing plant approved by the Meat & Poultry Inspection Program of APHIS, USDA. Country of origin must be free of diseases noted by Veterinary Services of APHIS.
- (5) Canned fruits and vegetables No agricultural quarantine restrictions. Such products do, however, come under regulations of the Food and Drug Administration. See FDA section which follows

#### THE FOOD, DRUG, AND COSMETIC ACT

The Federal Food, Drug, and Cosmetic Act prohibits distribution in the United States, or importation by the United States, of articles that are adulterated or misbranded. As defined in the law itself, the term "adulteration" has to do with the content of a product (Secs. 402, 501, 601), while "misbranding" includes any statements in labels or labeling that are false or misleading (403, 502, 602).

The law is intended to assure the U.S. consumer that foods are pure and wholesome, safe to eat, and produced under sanitary conditions; that drugs and therapeutic devices are safe and effective for their intended uses; that cosmetics are safe and made from appropriate ingredients; and that all labeling and packaging is truthful, informative, and not deceptive.

All imported products are subject to inspection by the Food and Drug Administration of the U.S. Department of Health, Education, and Welfare (HEW) at the time of entry through U.S. Customs. Shipments found not to comply with the Food, Drug, and Cosmetic Act are subject to reexportation or destruction.

Packaged foods must carry, on the label, in the English language: the name and address of the manufacturer; an accurate statement of the net amount of food in the package (drained weight rather than net weight is required on products packed in a liquid that is not consumed as food); common or usual name of the food; statement of the presence of artificial flavorings, colorings, and chemical preservatives; and a list of ingredients by their common names in the order of their predominance by weight.

FDA labeling requirements might soon include a statement on the nutritive content of the product. Such detail is being considered and, although U.S. manufacturers and packers are resisting the proposal, some form of detailed nutritional labeling will undoubtedly be required in the near future. The general complexities of the law and possible changes in labeling requirements



led FDA officials in Washington to advise that a sample of product, and package, for any item considered for export from Vietnam be submitted for visual inspection and chemical analysis by FDA. The Administration would then give an opinion on the product's probable U.S. entry status.

Questions from individuals and firms regarding labeling, controls, formulas, and interpretations of the law and regulations applicable to a particular product or practice may be addressed to the appropriate district office of the Food and Drug Administration or its Washington headquarters. Requests for comments on proposed labeling should be accompanied by a complete ingredient listing or formula information. The confidentiality of trade secret information is protected by law.

Detailed information on the Food, Drug, and Cosmetic Act may be found in the HEW publication, "Requirements of the U.S. Food, Drug, and Cosmetic Act," FDA 72-1013, Revised February 1972. Members of the Vietnamese marketing team and USAID/ADFA, Saigon, have been given copies of this publication. (Also see Appendix C)

### THE U.S. FOOD CONSUMPTION SITUATION

Per capita food consumption in the United States is expected to reach a new high in 1973. Gains are expected in consumption of meat, poultry, fish, dairy products, vegetable oil, fruit (both fresh and processed), and processed vegetables. In general, this follows the trend of recent years (Tables 2 and 3).

In 1972, food expenditures in the United States rose to nearly \$125 billion, 6 percent above a year earlier. Expenditures on meals eaten away from home continued to rise (8 percent in 1972). Consumption of partially prepared or "convenience" foods and ethnic dishes continued their upward trend, reflecting the American consumers' willingness to experiment with new and different foods and food forms. Yet, food costs still accounted for less than 16 percent of disposable personal income (Table 4).

Most U.S. demand for the products in this study is met via imports. Pineapple, of course, is produced in Hawaii. Along with the trust territory of Puerto Rico, Hawaii also produces small quantities of arabica coffee. Some herbs and spices are produced on the U.S. mainland, but nowhere near enough to supply the Nation's needs.

Sugar is a unique commodity. It is produced in the United States and yet about half the Nation's needs still must be satisfied via imports. The U.S. Sugar Act makes the possibility of Vietnam's obtaining a sugar quota a political-institutional issue rather than an economic-technical question. (Details are contained in a later section.)

Pork is an exception to the import thesis. Most U.S. demand for pork is satisfied from domestic sources, with only about 4 percent of the 1972 commercial pork distribution from imports. Most of the canned hams and shoulders imported come from Denmark and the Netherlands. (Details are contained in a later section.)

Probably the most promising area for Vietnam-produced goods became apparent when the Vietnam/USDA team met with members of the U.S. spice trade.

Table 2.--United States: Per capita consumption of major food commodities and civilian population, selected years 1/

Commodity	1960	1967	1969	1970	1971	1972	1972 as percent- age of 1971
	Pounds						Percent
Meats (carcass weight).....	160.9	178.3	182.5	186.3	191.8	188.8	98
Beef.....	85.1	106.5	110.8	113.7	113.0	115.9	103
Veal.....	6.1	3.8	3.3	2.9	2.7	2.2	81
Lamb and mutton.....	4.8	3.9	3.4	3.3	3.1	3.3	106
Pork (excluding lard).....	64.9	64.1	65.0	66.4	73.0	67.4	92
Fish (edible weight).....	10.3	10.6	11.2	11.8	11.2	11.5	103
Poultry products:							
Eggs (farm basis)--number <u>1/</u> ....	335	324	318	319	322	315	98
Chicken (ready-to-cook).....	28.1	37.2	35.1	41.4	41.4	42.9	104
Turkey (ready-to-cook).....	6.1	8.6	8.3	8.2	8.5	8.9	105
Dairy products:							
Cheese.....	8.3	10.1	11.0	11.5	12.2	13.1	107
Condensed and evaporated milk....	13.7	9.0	7.9	7.1	6.8	6.2	91
Fluid milk & cream (milk equiv.):	322	285	272	264	259	258	100
Ice cream (product weight).....	18.3	17.8	18.0	17.7	17.6	17.9	102
Fats and oils--total fat content...	45.3	49.4	51.9	53.3	52.1	53.1	102
Butter (actual weight).....	7.5	5.5	5.4	5.3	5.1	5.0	98
Margarine (actual weight).....	9.4	10.5	10.8	11.0	11.1	11.3	102
Lard.....	7.6	5.4	5.1	4.7	4.3	3.6	84
Shortening.....	12.6	15.9	17.1	17.3	16.8	16.9	101
Other edible fats and oils.....	11.5	15.1	16.8	18.2	18.1	19.5	108
Fruits: Fresh.....	93.4	80.9	79.0	81.4	80.0	77.7	97
Citrus.....	33.7	31.6	28.3	28.6	29.2	27.3	93
Apples (commercial)....	18.3	16.2	15.1	18.5	16.2	17.4	107
Other (excluding melons)	41.4	33.1	35.6	34.3	34.6	33.0	95
Processed:							
Canned fruit.....	22.6	22.6	24.2	23.3	21.9	20.3	93
Canned juice.....	13.0	11.7	14.7	14.2	15.4	15.6	101
Frozen (incl. juices)...	9.1	10.1	9.3	9.8	10.2	10.4	102
Dried.....	3.1	2.8	2.7	2.7	2.6	1.8	69
Vegetables:							
Fresh <u>2/</u> .....	105.9	98.1	98.9	99.5	98.6	98.2	100
Canned, excluding potatoes & sweetpotatoes <u>3/</u> .....	43.4	49.0	51.6	51.1	51.2	51.6	101
Frozen, excluding potatoes.....	7.0	9.0	9.1	9.6	9.7	9.6	99
Potatoes, fresh equivalent <u>3/</u> .....	108.4	108.0	116.8	117.7	118.9	120.2	101
Sweetpotatoes, " " <u>3/</u> .....	7.1	5.8	5.7	5.6	4.9	4.9	100
Grains:							
Cornmeal and flour.....	6.6	7.2	7.4	7.4	7.4	7.4	100
Corn sirup.....	10.1	14.1	15.4	15.8	16.2	16.5	102
Corn sugar.....	3.7	4.6	4.9	5.0	5.2	5.2	100
Wheat flour <u>4/</u> .....	118	112	112	110	110	110	100
Wheat cereals.....	2.8	2.9	2.9	2.9	2.9	2.9	100
Rice, milled.....	6.1	7.5	8.3	6.7	7.7	7.0	91
Other:							
Coffee (green beans).....	15.8	14.8	14.2	13.8	13.2	13.9	105
Tea.....	.59	.69	.73	.72	.77	.78	101
Cocoa beans.....	3.6	4.2	3.9	3.9	4.0	4.4	110
Peanuts (shelled).....	4.9	5.7	5.9	5.9	5.9	6.1	103
Dry edible beans.....	7.3	6.9	6.8	5.9	5.9	6.2	105
Melons.....	25.8	22.4	23.1	23.4	22.7	22.0	97
Sugar (refined).....	97.6	97.3	100.1	102.5	102.4	102.4	100
Civilian population <u>5/</u> .....	178.1	195.2	199.1	201.6	204.2	206.5	101

1/ Quantity in pounds, except for eggs. Data on calendar year basis except for dried fruits, which are on pack-year basis, fresh citrus fruits and peanuts on a crop-year basis, and rice on Aug. 1 year. Fresh citrus year begins in previous October and rice year begins in previous August. 2/ Commercial production for sale as fresh produce. 3/ Data have been revised based on information from the 1969 Census of Agriculture. 4/ Includes white, whole wheat, and semolina flour. 5/ July 1 civilian population (50 States beginning 1960) used to derive per capita figures except for sugar, dried fruit, peanuts, and rice.

Table 3.--United States: Per capita food consumption index, 1960-72 1/  
(1967=100)

Selected years	Meat	Poultry	Fish	Eggs	Dairy products 2/	Fats and oils		Fruits 3/
						Animal	Vege- table	
						2/	Total	Fresh
								Proc- essed
								Total
1960.....	92	75	95	104	106	123	81	111
1961.....	92	82	99	101	104	125	78	107
1962.....	93	81	98	101	105	123	81	102
1963.....	96	82	99	98	104	119	85	93
1964.....	98	84	97	98	104	116	90	98
1965.....	94	89	101	97	103	111	92	100
1966.....	96	96	100	97	102	99	102	100
1967.....	100	100	100	100	100	100	100	100
1968.....	103	99	102	99	101	103	104	98
1969.....	102	103	102	98	100	95	110	98
1970.....	104	108	109	99	99	90	116	101
1971.....	107	109	103	99	99	90	114	99
1972 4/.....	105	113	106	97	100	87	119	96

Vegetables 5/											
: Potatoes and : Sugar : Coffee, :			: Cereal : and : tea, :			All food					
: Pro- : Total			: Pro- : products: sweet- :			: Animal : Crops : Total					
: Fresh : cessed :			: Fresh : cessed :			: cocoa :products: 6/ :					
1960.....	107	84	99	129	56	103	98	100	95.7	97.1	96.4
1961.....	104	85	98	127	59	102	98	102	95.8	96.4	96.0
1962.....	102	89	97	121	64	101	99	102	96.2	96.5	96.3
1963.....	101	89	97	124	69	100	99	105	97.3	95.9	96.6
1964.....	100	91	97	113	76	101	99	102	98.8	96.4	97.6
1965.....	100	95	98	105	86	101	99	99	96.9	97.6	97.2
1966.....	98	97	98	106	98	99	100	99	98.1	98.6	98.3
1967.....	1000	100	100	100	100	100	100	100	100.0	100.0	100.0
1968.....	99	104	100	101	106	101	103	100	101.5	101.1	101.2
1969.....	99	104	101	94	118	101	104	97	101.2	102.0	101.5
1970.....	100	104	101	91	121	98	106	94	102.5	103.1	102.8
1971.....	99	105	101	87	124	99	107	92	103.9	102.8	103.4
1972 4/.....	99	105	101	87	127	98	107	92	103.4	103.0	103.3

1/ Civilian consumption only. Quantities of individual foods are combined in terms of 1957-59 retail prices.

Data for earlier years are given in the 1970 Supplement to Food Consumption, Prices, and Expenditures, Agricultural Economics Report No. 138, November 1971. 2/ Includes butter. 3/ Excludes melons and baby food. 4/ Preliminary.

5/ Excludes soup, baby food, dry beans and peas, potatoes, and sweetpotatoes. 6/ Includes melons, dry beans and peas, nuts, soup, and baby food in addition to groups shown separately.



Table 4.--United States: Expenditures for food in relation to disposable income, 1960 and 1965-72 1/

Year	:	:	Personal consumption expenditures for food <u>2/</u>				
	: Disposable:	For use at home <u>3/</u>	:	Away from home <u>4/</u> :	:	Total	
	: personal	:	Percent-	:	Percent-	:	Percent-
	: income	: Amount	: age of	: Amount	: age of	: Amount	: age of
:	:	:	income	:	income	:	income
:	:	:	:	:	:	:	:
:	Bil.	Bil.		Bil.		Bil.	
:	<u>do1.</u>	<u>do1.</u>	<u>Pct.</u>	<u>do1.</u>	<u>Pct.</u>	<u>do1.</u>	<u>Pct.</u>
1960.....	350.0	56.8	16.2	13.3	3.8	70.1	20.0
1965.....	473.2	69.3	14.6	16.5	3.5	85.8	18.1
1966.....	511.9	73.8	14.4	18.2	3.6	92.0	18.0
1967.....	546.3	74.5	13.6	19.4	3.6	93.9	17.2
1968.....	591.0	79.0	13.4	20.7	3.5	99.7	16.9
1969.....	634.4	82.0	12.9	22.1	3.5	104.1	16.4
1970.....	689.5	90.2	13.1	24.0	3.5	114.2	16.6
1971.....	744.4	92.4	12.4	24.9	3.4	117.3	15.8
I.....	725.7	92.0	12.7	24.5	3.4	116.5	16.1
II.....	742.9	92.3	12.4	24.6	3.3	116.9	15.7
III.....	750.4	92.5	12.3	24.8	3.3	117.3	15.6
IV.....	758.5	92.6	12.2	25.7	3.4	118.3	15.6
1972.....	795.1	97.8	12.3	26.8	3.4	124.6	15.7
I.....	770.5	94.3	12.3	26.3	3.4	120.6	15.7
II.....	782.6	97.4	12.4	26.6	3.4	124.0	15.8
III.....	798.8	98.8	12.4	26.7	3.3	125.5	15.7
IV <u>5/</u> ..	828.4	100.6	12.2	27.6	3.3	128.2	15.5

1/ Quarterly data are seasonally-adjusted annual rates.

2/ Derived from data of Department of Commerce, Survey of Current Business and The National Income and Product Accounts of the United States, 1929-65, assuming one-fourth of purchased meals and beverages is alcoholic beverages and the balance of reported alcoholic beverages is for off-premise use (consistent with 1963 Census of Business Merchandise Line Sales). Omits alcoholic beverages, food donated by Government agencies to schools and needy persons, and non-personal spending for food such as business purchases of meals, food furnished inmates of hospitals and institutions, and food included with transportation tickets and camp fees.

3/ Includes food consumed on farms where produced.

4/ Includes food served to the military and employees of hospitals, prisons, and food service establishments.

5/ Preliminary.

## THE U.S. MARKET FOR SPICES

Complete USDA data on 1972 spice imports are not yet available. In 1971, however, U.S. imports of specified condiments and flavoring materials amounted to a record 296 million pounds valued at \$81 million, up from 1970 imports of 273 million pounds valued at \$78 million. Outstanding import increases were posted by cassia, black pepper, and mustard seed in 1971 (Tables 5 and 6).

The United States is the world's largest importer and consumer of spices, herbs, and aromatic seeds used to season food products. Consumption of these items is still undergoing an expansionary trend in the United States, rising about 77 percent in the past decade. U.S. per capita consumption of spices over the decade of the sixties has increased from 18.4 to 28.8 ounces. Both imports and domestic production of spices have shared in the expansion of U.S. consumption.

The continuing growth in U.S. spice usage is attributed to several factors. These include high income levels, increasing population, a growing demand for "convenience" food items, and changing consumer tastes. Also, the increased popularity of dietary foods has added to demand, as the addition of spices often makes them more palatable for the consumer. Food manufacturers and processors also are beginning to realize that traditional foods and sauces can be spiced more heavily to make them different from competitive brands.

Although spices are brought in through many of the major U.S. ports, New York is by far the largest port of entry. The ports of Baltimore and San Francisco are also important. All spice imports are subject to the sanitary regulations of the U.S. Food and Drug Administration as contained in the Food, Drug and Cosmetic Act, and should be in conformity with the American Spice Trade Association's (ASTA) cleanliness specifications. A certificate of analysis issued by a laboratory approved by ASTA is also required.

As a rule, no food manufacturer imports or grinds his own spices. Manufacturers usually buy from spice grinders, as they not only have the experience needed to assure a continuing supply of quality material at reasonable prices, but they also perform added services such as maintaining close quality control on shipments and blending spices to manufacturers' specifications.

Spices generally are imported in their unground form to conserve the volatile oil content that provides their flavoring power and to better exercise sanitation and quality control.

Estimates indicate that home consumption accounted for approximately half of the spice in the United States. Food manufacturers account for between 25 and 30 percent and institutions (restaurants, hospitals, schools), the remaining 20 to 25 percent. However, an increasing share is being captured by industry and institutions, while the retail share is declining.

The most important spice consumed in the United States is black pepper. Annual use is now estimated at well over 50 million pounds. It is the only spice believed to be utilized in all U.S. homes. Other spices used in a high percentage of U.S. homes are cinnamon, nutmeg, cloves, mustard, pimento (allspice), and ginger.

Table 5.--Specified condiments and flavoring materials: United States imports, 1970 and 1971

Condiments and flavoring materials 1/	1970		1971 2/	
	1,000 pounds	1,000 3/dollars	1,000 pounds	1,000 3/dollars
Cassia.....	4,801	3,815	9,590	5,811
Cinnamon.....	3,983	1,637	4,852	1,448
(ground).....	2	2	--	--
Ginger.....	5,209	2,241	4,528	1,469
(ground).....	--	--	3	3
Nutmeg.....	3,934	1,896	3,629	1,443
Pepper, black.....	42,675	18,507	54,941	24,204
Pepper, white.....	5,639	2,605	4,915	2,149
(black & white ground).....	4	5	2	2

1/ Unground unless otherwise specified.

2/ Preliminary.

3/ Market value in country of origin, exclusive of import duty, freight, and insurance charges.

Source: USDA, Foreign Agricultural Service.

Table 6.--United States: Imports of specified condiments and flavoring materials by country of origin, 1970 and 1971

Commodity and origin <u>1/</u>	1970	1971 <u>2/</u>		
	1,000 <u>pounds</u>	1,000 <u>3/dollars</u>	1,000 <u>pounds</u>	1,000 <u>3/dollars</u>
<b>CASSIA:</b>				
People's Republic of China .....	--	--	2,204.8	1,326.2
India.....	191.1	53.4	269.2	64.1
Indonesia.....	4,398.4	3,699.2	5,445.1	3,410.5
Malaysia.....	44.4	23.1	128.3	81.8
Netherlands.....	--	--	125.8	61.1
Seychelles.....	5.6	1.3	--	--
Singapore.....	2.0	1.4	--	--
Taiwan.....	137.7	22.2	1,029.8	519.7
Vietnam, South.....	22.0	14.3	199.5	230.9
Others.....	--	--	187.1	116.3
Total.....	4,801.2	3,814.9	9,589.6	5,810.6
<b>CINNAMON:</b>				
Ceylon (Sri Lanka) .....	906.6	592.7	591.2	298.2
People's Republic of China .....	--	--	40.0	30.0
India.....	121.3	38.5	45.9	13.5
Indonesia.....	77.6	31.5	.6	.5
Kenya.....	67.6	18.9	22.4	4.2
Malagasy Republic.....	1,435.2	545.6	1,258.0	368.2
Seychelles.....	1,237.1	356.1	2,656.0	660.3
South Africa.....	23.0	6.5	56.4	11.7
Tanzania.....	22.7	5.1	21.8	5.2
Others.....	92.1	41.6	159.4	56.1
Total.....	3,983.2	1,636.5	4,851.7	1,447.9
<b>GINGER:</b>				
Australia.....	198.7	114.3	134.4	74.1
Fiji Islands.....	950.5	130.7	762.5	110.8
India.....	202.0	147.7	470.4	172.4
Jamaica.....	324.7	349.0	348.4	348.7
Nigeria.....	2,995.9	1,251.7	2,223.3	579.3
Sierra Leone.....	257.5	157.5	510.2	157.7
Taiwan.....	55.0	19.0	6.0	.8
Others.....	224.9	71.2	72.4	25.5
Total.....	5,209.2	2,241.1	4,527.6	1,469.3

- Continued



Table 6.--United States: Imports of specified condiments and flavoring materials by country of origin, 1970 and 1971 - continued

Commodity and origin <u>1/</u>	1970	1971 <u>2/</u>		
	1,000 <u>pounds</u>	1,000 <u>3/dollars</u>	1,000 <u>pounds</u>	1,000 <u>3/dollars</u>
<b>NUTMEGS:</b>				
Ceylon (Sri Lanka) .....	11.2	2.6	63.7	18.0
India.....	32.5	17.9	27.6	11.3
Indonesia.....	3,215.7	1,538.0	2,858.4	1,137.9
Leeward & Windward Islands.....	279.4	143.4	456.1	191.3
Malaysia.....	112.0	51.8	--	--
Netherlands.....	121.4	62.6	--	--
Singapore.....	--	--	60.2	26.4
Trinidad.....	68.9	34.9	92.6	39.4
Others.....	92.8	45.0	70.3	18.9
Total.....	3,933.9	1,896.2	3,628.9	1,443.2
<b>PEPPER, BLACK:</b>				
Brazil.....	9,018.4	3,314.1	13,432.5	5,092.8
Ceylon (Sri Lanka) .....	970.6	415.3	28.5	15.1
India.....	8,451.7	4,364.9	6,992.5	3,658.1
Indonesia.....	13,315.4	6,089.6	25,767.2	11,714.7
Malagasy Republic.....	22.5	11.3	.4	.6
Malaysia.....	8,306.8	3,266.0	6,542.7	2,706.8
Singapore.....	2,375.8	946.1	1,894.6	892.0
Others.....	214.1	99.3	282.7	123.8
Total.....	42,675.3	18,506.6	54,941.1	24,203.9
<b>PEPPER, WHITE:</b>				
Brazil.....	137.4	23.2	88.2	36.7
India.....	111.7	56.3	89.5	40.4
Indonesia.....	4,562.3	2,137.7	4,069.3	1,796.2
Malaysia.....	207.2	82.0	329.4	132.4
Singapore.....	548.8	249.3	336.2	142.0
Others.....	71.2	56.5	2.1	1.0
Total.....	5,638.6	2,605.0	4,914.7	2,148.7
<b>PEPPER, BLACK AND WHITE (ground):</b>				
Indonesia.....	1.7	2.5	--	--
Japan.....	--	--	.3	.3
Jamaica.....	1.2	.5	1.5	.6
Malagasy Republic.....	--	--	.2	.4
Others.....	1.0	2.0	.1	.3
Total.....	3.9	5.0	2.1	1.6

1/ Unground, unless otherwise specified. 2/ Preliminary. 3/ Market value in country of origin, exclusive of import duty, freight, and insurance charges.  
Source: USDA, Foreign Agricultural Service.



## IMPLICATIONS FOR VIETNAM SPICE EXPORTS

### Cassia

The U.S. spice houses visited by the Vietnamese/USDA marketing team all expressed interest in Vietnamese cassia. It was called the "world's finest," and the consensus of industry opinion indicated a good future potential for the Vietnamese cassia in the U.S. spice trade provided the product is good quality (high oil content and clean material), and available on a continuous basis over time, at competitive current prices.

On price, however, most spice handlers indicated that Vietnamese cassia could generally command a 5 to 20 cent per pound premium in the U.S. trade. Top cassia prices in recent years have been over \$2, and up to \$2.50 per pound. During February 1973, Korintji cassia (about 3 percent oil content) was selling through San Francisco brokers at \$1.10 per pound, China cassia for \$1.22 per pound, and ordinary cinnamon for 52 to 80 cents per pound. At this particular time, industry reported that Saigon cassia was being offered, when available, for between \$1.50 and \$2 per pound f.o.b. Saigon.

Regularity of supply and stability of price cannot be overemphasized with regard to spice trade to the United States. Many grades of cassia and cinnamon are interchangeable as ingredients. However, this is not true of all grades, and large spice customers such as major bakery firms invest great amounts of time and money in recipe development and standardization of recipes based on consumer appeal. The loss of a particular source and grade of cassia and/or cinnamon can bring chaos. A minimum of 10 months to a year lead time would be required to research and formulate recipe changes designed to utilize a different spice variety.

Cassias were rated as follows by several major U.S. spice houses:

1. Hanoi - Haiphong cassia.
2. Saigon cassia.
3. China cassia.
4. Indonesian cassia.
5. True cinnamon, mainly out of Ceylon and Seychelles.

Generally speaking, each 0.1 percent of oil content in cassia is worth 1 cent per pound. Vietnamese cassias often run well above 6 percent oil and are, as noted earlier, considered among the better types available. One U.S. broker estimated that, under conditions of assured supply and good quality, Saigon cassia could capture 25 percent of the U.S. market.

### Black Pepper

In February 1971, a group of major pepper producing countries--India, Indonesia, and Malaysia--agreed to establish a "Pepper Community," with membership open to other producing countries. The main objectives of the "Pepper Community" are to coordinate and exchange information on agronomic research, to develop markets and new uses for pepper, and to improve statistical data on pepper.

Vietnam may want to make contact with this organization for information and advice on pepper production.

Vietnam's prospects for exporting black pepper to the United States were considered rather poor by U.S. industry experts. India and Indonesia have been supplying U.S. needs for many years, virtually cornering the market. India's government-established and government-supervised grade specifications are extremely effective and guarantee U.S. buyers a high quality product. India moves this supervised product under the AGMARK label. Black pepper from India was selling in the U.S. trade at 53 to 57 cents per pound in February 1973.

### Ginger

The industry was pessimistic over Vietnam's chances with ginger, at least at the moment. Industry experts described the current market as "swamped." Nigeria and other African nations, as well as Jamaica, tend to be the major suppliers of ginger to the U.S. market. Africa, especially, can provide good quality peeled ginger at about 60 cents per pound. Jamaica No. 3, a top line ginger, sold for \$1.18 per pound (f.o.b.) in February 1973. Without an already existing ginger industry, Vietnam would seem to stand only a limited chance of breaking into such established trade and industry preferences.

### Nutmeg

Nutmegs come mainly from Indonesia. Prices have been trending downward over the past 5 years. U.S. imports also have been declining in recent years, although not to the same degree as prices. A stable to falling market such as nutmegs represent in the United States would not appear to be a promising field to explore at this time.

Table 7.--Specified condiments and flavoring materials: Approximate New York spot quotations as of early March, 1966-72

Item	: 1966	: 1967	: 1968	: 1969	: 1970	: 1971	: 1972
	Cents/lb.						
<u>Cinnamon:</u>							
Ceylon (Sri Lanka) .....	145	123	93	89	72	66	62
Seychelles.....	20	19	27	57	38	28	41
<u>Ginger:</u>							
Indian, cochin.....	36	24	25	53	85	48	30
Nigerian, peeled.....	28	23	20	34	70	48	44
<u>Nutmegs:</u>							
East Indian.....	145-150	108-125	60-65	50-68	65-70	57-62	58-64
West Indian.....	140-150	107-115	43-60	55-65	63	54	52-54
<u>Pepper, black:</u>							
Indonesian, Lampung.....	45	31	34	30	57	56	45
Indian, Malabar.....	45	38	37	39	57	56	49
Brazilian.....	43	30	31	26	40	42	45
<u>Pepper, white:</u>							
Indonesian, Muntok.....	62	47	37	34	50	49	63
Brazilian.....	62	47	37	34	52	<u>1/</u>	<u>1/</u>

1/ Not quoted.

Source: Foreign Agricultural Service.

## IMPORT AGENTS AND BROKERS

Nearly all U.S. handlers and processors queried advised that Vietnam work through established brokers or agents when dealing in the United States. The major advantage is that brokers are familiar with the market and its potential buyer segment. Fees for agent services average 2 percent for spices. None go higher than 5 percent, and that fee is for paprika.

Buyers make purchases on the basis of samples provided by suppliers. Contracts in the spice trade are generally written to guarantee the sale only if the lot offered is "equal to sample submitted." If the buyer, or his agent, finds a shipment to be less than the submitted sample, he may not accept it. The supplier is then faced with additional costs to bring his shipment up to an acceptable level (this usually involves recleaning to remove excess trash). Or, he may sell it at a lower price, provided, of course, the shipment meets the required U.S. Government cleanliness standards. This is why the cleanliness specifications of the American Spice Trade Association are extremely important. These specifications are listed in Appendix E.

Traditionally in the U.S. spice trade, the exporter sells his spices through an agent (resident in New York City, for example) to a United States importer. The importer then sells through a broker to a grinder. The grinder cleans, grinds, and packs the spices for sale to a food store through a wholesaler, or to a food processor whose final product finds its way into a food store.

Recently, however, there have been changes. The exporter can sell directly to an importer, who may sell directly to a grinder. In other words, both the agent and broker are bypassed. There are now concentrations of activities under one roof. Some agents are also brokers; some importers are grinders and wholesalers at the same time. Some grinders are food processors and some food chains make their own importing arrangements and have their own grinding operations.

## THE U.S. MARKET FOR TROPICAL FRUIT

### PINEAPPLE

Most pineapple consumed in the United States is grown in Hawaii. Canned pineapple is imported from the Philippines, Taiwan, Mexico, Malaysia, and Thailand. During 1972, the Philippines shipped 102 million pounds of canned pineapple to the United States (Table 8). Taiwan shipped 74 million pounds and Malaysia-Singapore and Mexico shipped 26 and 24 million pounds respectively. More than 13 million pounds of canned pineapple came from Thailand. In total, the United States imported nearly 250 million pounds of canned pineapple in 1972.

During 1972, the United States imported 36.7 million pounds of fresh pineapples in bulk containers from Mexico. In addition 212,450 pounds in 70-pound crates and nearly 26 million pounds in 70-pound cartons were imported from Honduras and Mexico. Other suppliers of fresh pineapple are the Bahamas, Ecuador, and Brazil. Fresh pineapple may not be imported from Vietnam because of the fruit fly.



Table 8.--Imports of fresh and canned pineapple, 1972

Country of origin	Fresh	Canned
	1,000 pounds	
Philippines.....	--	102,356
Taiwan.....	--	74,763
Malaysia-Singapore.....	--	26,117
Mexico.....	36,735	24,488
Thailand.....	--	13,773
Honduras.....	25,538	--
Unspecified.....	212	--
Total.....	62,485	249,578

Per capita consumption of pineapple has remained fairly stable. During the 20-year period, 1950-1970, fresh pineapple consumption varied around 0.5 to 0.6 pounds per person. Consumption of canned pineapple ranged from 2.8 to 3.7 pounds, but showed no particular trend. Consumption of canned and chilled pineapple juice remained about 3 pounds per person (Table 9).

Interviews were obtained with several major users of canned pineapple. The S. S. Pierce Company imports approximately 6,000/41-pound cases of No. 10 cans per year. These are canned primarily in Taiwan, Hawaii, and Africa. The S. S. Pierce Company reported that an additional thousand cases are needed per year. Hawaiian pineapple is preferred. A competitive price in 1973 would be \$7.10 per case of six No. 10 cans landed in Boston.

Pineapples were also a major commodity handled by the Johnson-O'Hare Company in Boston. Ninety percent of the pineapples handled by this firm is produced and canned in Taiwan. In late 1972 and early 1973, the Johnson-O'Hare Company was paying \$7.25 per case of six No. 10 cans and \$4.50 per case of 24/16-ounce cans. Vietnam would have to meet these prices with top quality pineapples that passed F.D.A. inspection to enter the market for canned pineapple. The Hawaiian variety of pineapple, which is highly acid, is preferred by consumers in the United States.

Mr. O'Hare suggested an exchange program so that Vietnamese Government or industry personnel could learn fully the U.S. marketing system and market requirements. Meanwhile, the service of a U.S. broker to advise on package sizes, marketing areas, and sales promotions was suggested.

#### LONGAN AND LYCHEE

The consensus of industry contacts was that longan and lychee (litchi) had no chance in the U.S. market. Almost no one in the American society is familiar with these tropical fruits and the promotional effort to develop a market would be prohibitive. In addition, industry respondents who were familiar with longan and lychee indicated that heat processing would all but destroy the delicate flavor of these fruits.

Table 9.--U.S. per capita consumption of fresh and canned pineapple and pineapple juice, 1950-1971 1/

Year	Fresh	Canned	Canned and chilled juice	
	pineapple	pineapple	Single strength	Concentrate <u>2/</u>
	Pounds			
1950.....	0.7	3.0	1.89	--
1951.....	.5	3.0	2.43	--
1952.....	.5	3.1	2.82	--
1953.....	.4	3.3	2.80	--
1954.....	.5	3.4	2.41	--
1955.....	.7	3.4	2.78	--
1956.....	.6	3.3	2.69	--
1957.....	.6	3.2	2.32	0.79
1958.....	.6	3.3	2.38	1.29
1959.....	.5	3.1	1.92	1.27
1960.....	.6	3.2	2.15	1.25
1961.....	.4	3.1	2.07	1.19
1962.....	.4	2.8	2.09	1.18
1963.....	.4	3.2	2.61	1.74
1964.....	.5	3.2	1.97	1.64
1965.....	.5	3.1	1.84	1.19
1966.....	.5	3.1	1.92	1.73
1967.....	.5	3.1	1.76	.96
1968.....	.5	3.7	2.14	1.51
1969.....	.6	3.4	1.61	1.82
1970.....	.7	3.3	1.61	1.37
1971.....	.6	3.3	1.53	1.31

1/ All data on a calendar year basis. Beginning 1960, includes Alaska and Hawaii.

2/ Single-strength equivalent.

Table 10.--Pineapple: U.S. canners' pack and stocks - 1967-71

Source	Pack			Stocks			
	1969	1970	1971	Canners		Distributors	
				June 1,	June 1,	June 1,	June 1,
				1971	1972	1971	1972
	1,000			1,000		1,000	
	- - <u>24/2-1/2 cases</u> - -			<u>-2-1/2 cases</u> -		- <u>actual cases</u> - -	
Hawaii...	16,871	17,813	17,602	7,787	8,622	2,250	n.a. <u>1/</u>

1/ N.a. = Data not available.

Table 11.--Canned pineapple juice: U.S. pack and stocks 1969/70 - 1971/72

Commodity	Pack			Stocks			
	1969/70	1970/71	1971/72	Canners 1/		Distributors	
				Aug. 1,	July 31,	July 1,	July 1,
				1970	1971	1970	1971
	- -	<u>1,000 24/2 cases</u>	- - -	<u>1,000 24/2 cases</u>	<u>1,000 actual cases</u>		
Pineapple juice....	15,014	13,704	13,641	6,355	6,606	705	818
Pineapple concen-							
trate,							
single							
strength							
basis....	10,208	12,011	11,199	4,234	5,823	<u>2/</u>	<u>2/</u>

1/ Canners stocks from Pineapple Growers Association of Hawaii.

2/ Data not reported.

#### THE U.S. MARKET FOR BAMBOO SHOOTS AND WATER CHESTNUTS

The growing popularity of oriental, exotic, and gourmet foods in the United States has led to the increasing importation of bamboo shoots and water chestnuts.

La Choy Foods and R. J. Reynolds (Chun King) control approximately 80 percent of the oriental food market in the United States. Great China Food Products is also important. Mr. Fankhauser, La Choy Foods, reports that their business has grown at a rate of about 15 percent per year. The importation of water chestnuts nearly doubled during the 5-year period, 1968-1972 (Table 12).

Table 12.--Imports of water chestnuts into the U.S., 1968-1972

Year	Total		Taiwan	
	Million pounds	Million dollars	Million pounds	Million dollars
1968....	8,412	1,294	8,340	1,283
1969....	9,399	1,466	9,306	1,448
1970....	12,082	1,966	11,902	1,928
1971....	13,339	2,250	13,155	2,217
1972....	16,387	2,854	16,311	2,837

Source: U.S. Tariff Schedule 14170.



Data are not available for bamboo shoots, but the U.S. Tariff Commission estimated that 6.5 million pounds were imported in 1967. The growth in importation of bamboo shoots has paralleled that of water chestnuts.

Water chestnuts are imported from Taiwan, whole, either in cases of six No. 10 cans, weighing 30 pounds per case, or in 8-ounce cans. The 8-ounce cans are packed and labeled in Taiwan. The same procedure is used for bamboo shoots. Before this arrangement was made, at least one firm sent a man to Taiwan to set up the packing plant and insure that all quality and sanitary conditions were met. This plant is under continuous USDA inspection. In addition, canned products are sampled and inspected at port of entry by U.S. Government inspectors. Major U.S. firms prefer to buy through importers who are prepared to bear the risk of international trade.

There appears to be a potential U.S. market for water chestnuts and bamboo shoots for use in oriental foods. This market is expanding rapidly and, although Taiwan is now the predominant supplier, U.S. food manufacturers were interested in the Vietnamese products. Vietnam would need to produce products of comparable quality at competitive prices.

#### THE U.S. MARKET FOR TEA

Grocery store tea sales in the United States increased from 86 million pounds to 128 million pounds between 1960 and 1972 (Table 13 and Figure 1). Despite some fluctuation, U.S. tea imports have been trending upward during the same period (Table 14).

Wholesale tea prices (India - Ceylon composite--New York spot) averaged 51 cents per pound in 1972, 2 cents a pound higher than in 1971, although third and fourth quarter prices declined several cents from the second quarter high of 53 cents per pound. U.S. retail tea prices averaged 65 cents in 1972 for a package of 48 tea bags, about the same as in 1971.

Grocery store tea sales in the United States have climbed over 85 percent since 1960. Tea bags are the most popular form, holding about 50 percent of retail tea sales. Instant tea is the next most popular type (30 percent of retail sales), followed by ice tea mixes and loose tea (Figure 2). Black tea imports to the United States come mainly from Ceylon (Sri Lanka), India, and Indonesia, as well as Kenya and some of its neighboring African nations. Green and oolong teas come, for the most part, from Japan and Taiwan, respectively.

Industry experts were pessimistic over the future prospects for green and specialty teas in the United States. The trend toward tea bags and instant mixes is expected to continue. Industry representatives contacted by the Vietnamese/USDA marketing team estimated that, in 5 years, bags would hold 60 percent of the U.S. market and instants (plain or with added flavorings) most of the remaining 40 percent of the market. Loose tea is expected to continue its decline to only a fraction of a percent of the retail tea market.

Generally speaking, the United States is not an especially quality-conscious tea market. Medium to average grade black teas at 53 cents per pound are being

Table 13. Grocery store tea sales in the United States, 1960-72

Year	Iced tea mix	Instant tea	Tea bags	Loose tea	Total
	<u>Million pounds of leaf tea</u>				
1972.....	12.4	38.0	65.0	12.6	128.0
1971.....	11.2	36.8	65.0	14.0	127.0
1970.....	8.3	35.2	62.2	14.3	120.0
1969.....	6.4	31.5	59.1	15.7	112.7
1968.....	5.4	29.6	58.9	17.9	111.8
1967.....	3.8	26.3	57.3	19.2	106.6
1966.....	3.1	24.9	58.1	21.5	107.6
1965.....	2.1	20.4	57.0	22.6	102.1
1964.....	--	18.3	54.9	24.7	97.9
1963.....	--	13.6	54.9	26.0	94.5
1962.....	--	10.1	53.8	27.8	91.8
1961.....	--	7.0	52.8	29.1	89.0
1960.....	--	4.8	50.9	30.3	86.1

Source: Tea Council of the U.S.A., Inc.

Table 14.--Tea imports by the United States, 1960-72

Year	Total imports
	<u>Pounds of leaf tea</u>
1972.....	153,100,790
1971.....	168,830,801
1970.....	135,793,919
1969.....	139,257,041
1968.....	147,662,972
1967.....	140,947,117
1966.....	129,502,142
1965.....	131,344,562
1964.....	134,954,237
1963.....	125,048,253
1962.....	128,071,236
1961.....	110,827,823
1960.....	116,077,418

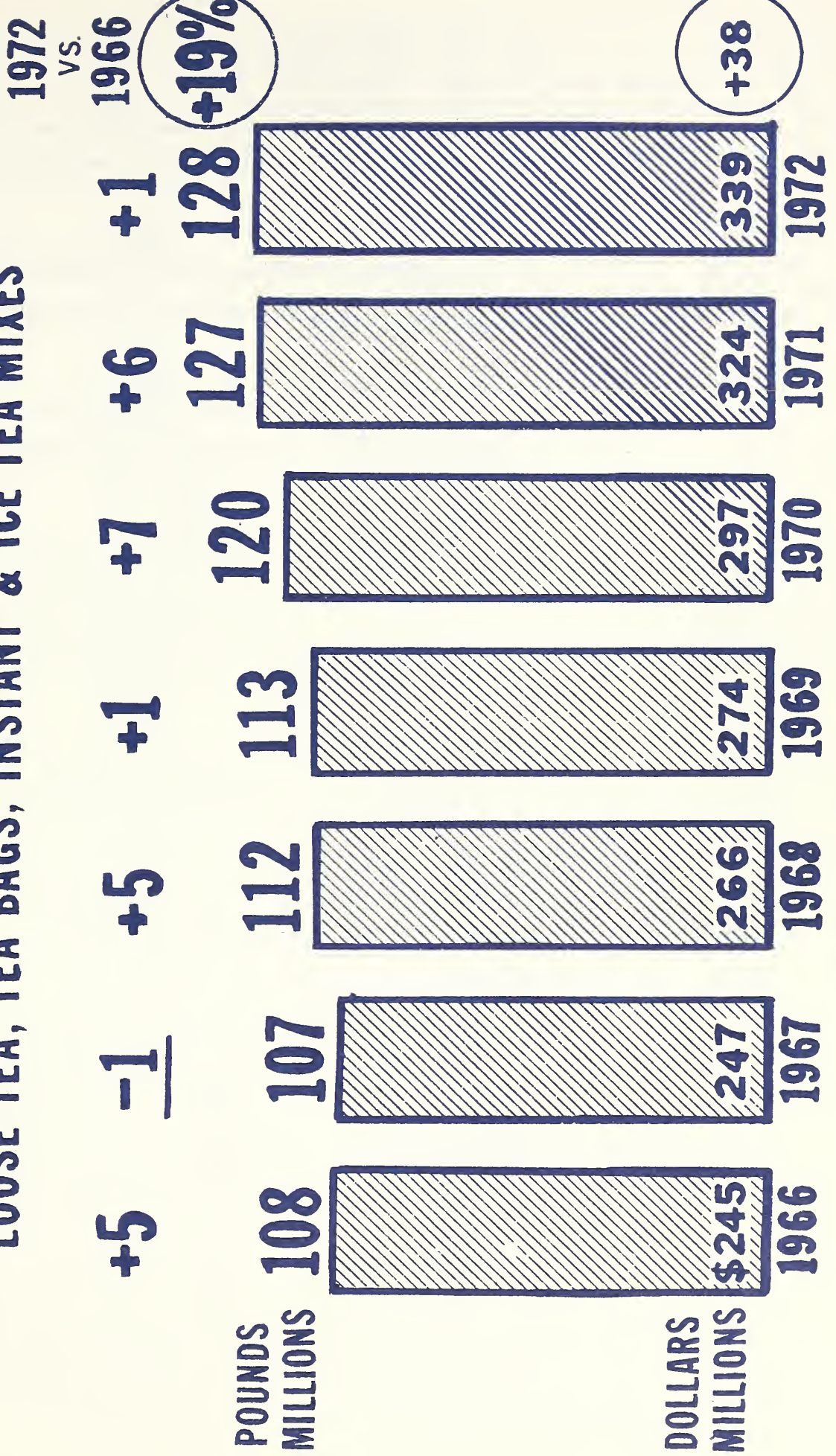
Source: Tea Council of the U.S.A., Inc.



Figure 1

# CONSUMER SALES OF TEA THROUGH FOOD STORES

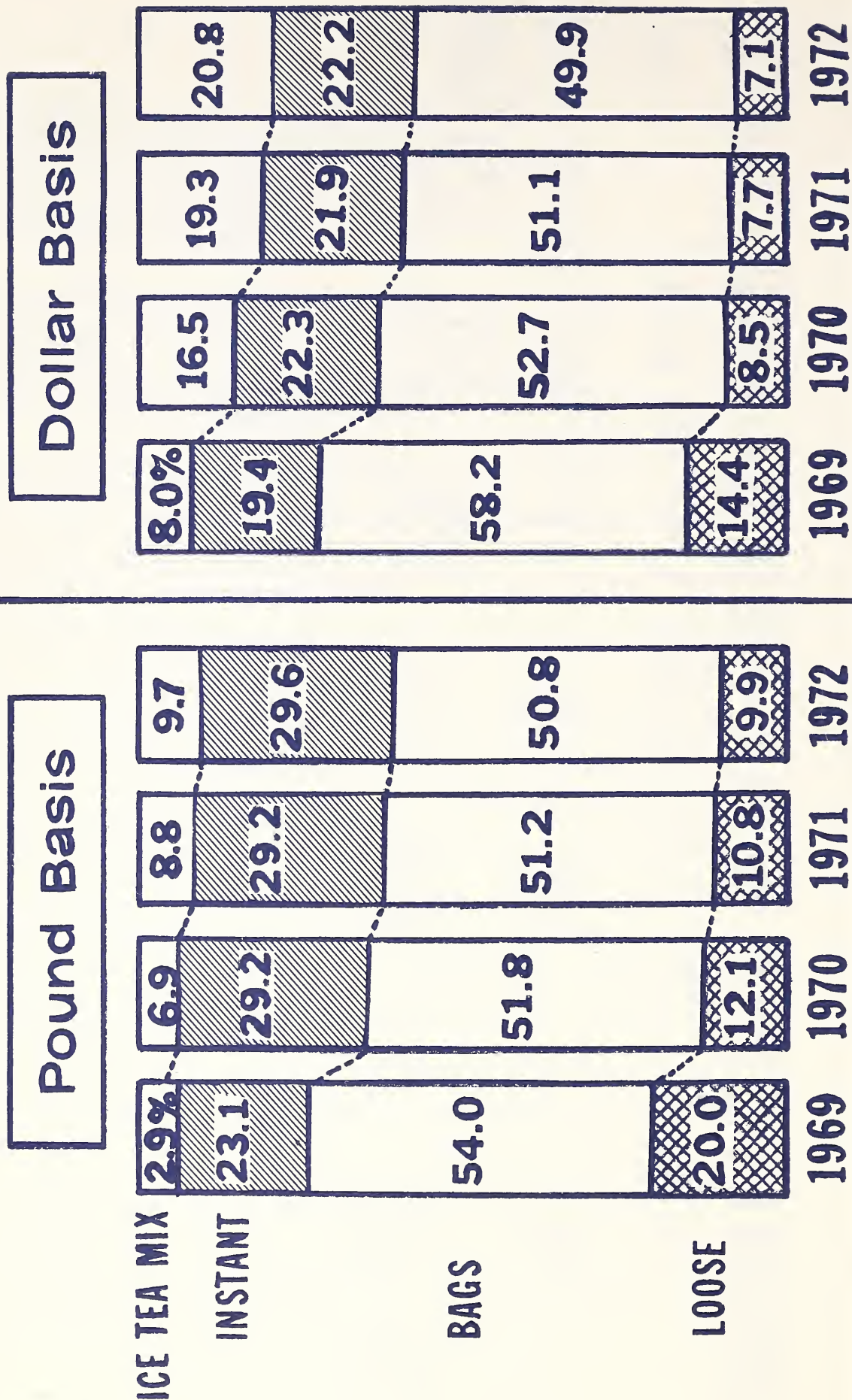
LOOSE TEA, TEA BAGS, INSTANT\* & ICE TEA MIXES\*



\* EQUIV. TO POUNDS OF LOOSE TEA

Figure 2

# DIVISION OF TEA SALES BY TYPES





made into tea bags in the United States. "Tea-bag teas" need not be the world's best. Many lower grade teas with some pieces of stalk and stems in the mix color and flavor well as tea bag fillers. The consumer does not actually see the tea in a bag, so the appearance is unimportant. "Fast-coloring" teas--those that quickly release color and aroma into the cup--are most desired by major U.S. tea processors.

Sales trends, expressed in millions of pounds of leaf teas for iced tea mix, instant tea, tea bags, and loose tea are shown in Table 13. Total U.S. tea imports are shown in Table 14. The difference between grocery store sales and imports is accounted for by institutional sales and tea inventories throughout the marketing chain.

One industry expert held the opinion that a new supplier of tea to the United States would be well advised to offer a processed, convenience type product. The growing instant or tea mix market would appear to offer some possibilities; perhaps a tea-and-cinnamon or a tea-and-ginger combination could be market tested for consumer appeal.

Aside from this, a medium-to low-grade black tea would hold some promise. This black tea would, of course, be aimed at the tea bag market and would have to be at least slightly lower priced than the average tea being offered. In the context of 50 to 55 cents a pound, this "slightly lower" price would mean 2 to 4 cents lower. At the time of contact (February 1973), teas from Bangladesh at 22 cents a pound were selling briskly; this is another indication that price, rather than quality, plays the dominant role in the majority of U.S. tea transactions.

A trend worth noting in the tea industry is the move away from the old, traditional wooden tea chest in favor of kraft boxes. Lower cost and ease of handling were mentioned among the advantages of kraft containers. A new supplier should check on the standard package size, pallet dimensions, etc., before attempting to move into the U.S. tea market. These standards are now in flux throughout most of the industry.

#### THE U.S. MARKET FOR COFFEE

World coffee production in 1972-73 will probably be at the highest level since the mid-1960's. It is now estimated at 72.3 million bags (132 pounds each), up approximately 1.1 percent from the estimate last winter. Approximately 53 million bags will be available for export.

With world import demand for green coffee estimated at 53 to 54 million bags per year, it appears that supply and demand are in approximate balance, although there could be a slight drawdown of stocks. By type, however, the situation is somewhat different. Brazilian stocks will probably decline by several million bags during the year, while stocks of other types may increase.

South America, primarily Brazil, is by far the leading producer of green coffee, usually accounting for about half of the world supplies (Table 15). Africa (Ivory Coast, Angola, and Uganda) is the second largest producer and the North American area, primarily Mexico and El Salvador, ranks third.

Table 15.--Coffee, green: Production in specified countries, average 1963-64/1967-68, annual 1968-69/  
1972-73 1/

Region and country	Average 1963-64/ 1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
	1,000 bags <u>2/</u>					
North America:						
Costa Rica.....	1,103	1,260	1,400	1,250	1,350	1,335
Cuba.....	487	500	500	475	475	475
Dominican Republic.....	624	540	640	700	715	715
El Salvador.....	2,048	1,900	2,500	2,170	2,600	2,500
Guadeloupe.....	6	5	1	1	1	1
Guatemala.....	1,798	1,740	1,750	1,840	2,100	1,750
Haiti.....	524	480	465	550	575	550
Honduras.....	425	450	550	570	650	600
Jamaica.....	24	17	20	20	24	18
Martinique.....	4	4	1	1	1	1
Mexico.....	2,811	2,850	3,075	3,200	3,400	3,700
Nicaragua.....	504	540	565	650	700	575
Panama.....	79	75	83	75	93	90
Trinidad-Tobago.....	63	65	43	69	49	63
US-Hawaii.....	46	36	28	31	21	20
US-Puerto Rico.....	259	280	170	240	150	200
Total.....	10,805	10,742	11,791	11,842	12,904	12,593
South America:						
Bolivia.....	83	160	165	85	85	85
Brazil.....	23,780	16,500	19,000	9,750	23,600	23,000
Colombia.....	7,920	7,900	8,450	7,800	7,200	8,200
Ecuador <u>3/</u> .....	908	1,000	660	1,300	1,100	900
Guyana.....	14	20	18	11	10	12
Paraguay.....	52	65	50	33	58	53
Peru.....	857	860	940	990	1,030	1,030
Surinam.....	9	7	6	3	3	3
Venezuela.....	789	860	900	900	950	1,100
Total.....	34,413	27,372	30,189	20,872	34,036	34,383
Africa:						
Angola.....	3,080	3,100	3,300	3,300	3,400	3,350
Burundi.....	241	275	240	350	400	325
Cameroon.....	994	1,100	1,200	1,150	1,250	1,250
Cape Verde Islands.....	2	2	2	1	1	1
Cent. African Rep.....	169	160	200	160	175	200
Comoro Islands.....	3	3	3	3	2	2
Congo, Brazzaville.....	13	20	15	15	14	14
Dahomey.....	24	18	15	15	15	15
Equatorial Guinea.....	130	125	120	120	115	115
Ethiopia.....	1,655	2,045	2,000	2,100	2,150	2,200
Gabon.....	17	20	20	15	10	15
Ghana.....	66	83	95	75	80	70
Guinea.....	155	180	200	150	100	125
Ivory Coast.....	3,795	3,400	4,600	4,000	4,400	4,500
Kenya.....	772	800	900	1,000	1,000	900
Liberia.....	60	65	75	85	80	85
Malagasy Republic.....	935	900	830	1,300	965	1,000
Nigeria.....	37	53	50	90	70	85
Rwanda.....	168	200	145	260	250	225
Sao Tome-Principe.....	6	6	4	3	2	2
Sierra Leone.....	91	95	90	125	95	125
Tanzania.....	707	950	775	950	850	800
Togo.....	184	280	220	200	200	200
Uganda.....	2,620	3,335	3,350	3,000	2,850	2,650
Zaire (Congo, K).....	985	1,000	1,100	1,350	1,300	1,350
Total.....	16,909	18,215	19,549	19,817	19,774	19,804

Continued

See footnotes at end of table.

Table 15.--Coffee, green: Production in specified countries, average 1963-64/1967-68, annual 1968-69/1972-73 1/ --Continued

Region and country	Average 1963-64/ 1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
	<u>1,000 bags</u> <u>2/</u>					
Asia:						
India.....	1,187	1,300	1,150	1,900	1,200	1,500
Indonesia.....	1,980	2,000	2,200	2,350	2,250	2,400
Malaysia.....	124	135	63	60	63	65
Philippines.....	709	735	815	840	835	865
Portuguese Timor.....	41	55	50	50	65	65
Vietnam, South.....	55	55	50	50	50	50
Yemen.....	72	70	60	60	60	60
Total.....	4,168	4,350	4,388	5,310	4,523	5,005
Oceania:						
New Caledonia.....	35	30	34	18	25	25
New Guinea.....	150	355	408	460	480	500
New Hebrides.....	4	4	3	2	2	2
Total.....	189	389	445	480	507	527
WORLD TOTAL.....	66,484	61,068	66,362	58,321	71,344	72,312

1/ Coffee marketing year begins about July in some countries and in others about October.

2/ Or 60 kilograms each.

3/ As indicated in footnote 1, the coffee marketing year begins in some countries as early as July. Ecuador is one of these countries. Hence, the crop harvested principally during June-October 1971 in that country is shown as production for the 1971-72 marketing year. In Ecuador, however, this is referred to as the 1970-71 crop.

Note: Production estimates for some countries include cross-border movements.

Source: Foreign Agricultural Service. Prepared or estimated on the basis of official statistics of foreign governments, other foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of office research, and related information.



Asian production, ranked fourth, is centered in India and Indonesia. South Vietnam produces about 50,000 bags of green coffee beans, most used in the country (Table 16).

The United States usually imports nearly half of the world exports of coffee, but there has been a shift in the types of coffee imported.

There are two important commercial species of coffee--arabica and canephora; the latter is commonly called robusta. Arabica coffee is further designated as unwashed (Brazilian) and washed. Colombian milds and other milds are the two types of washed arabicas.

Robusta coffees are mostly grown in Africa and Asia. They have a somewhat stronger flavor, which is quite distinguishable from the arabica coffees, and they are usually lower priced. Imports of robusta coffee accounted for 28 percent of U.S. imports in 1970, up from 3 percent in 1950 (table 17). Much of the rise in robusta coffee imports is explained by its use in instant coffee.

Unwashed arabicas or Brazils come mostly from Brazil, but significant quantities are also imported from Ethiopia. The overall quality of Brazils is generally considered better than robustas, but slightly less than milds. Imports of unwashed arabicas (Brazils) accounted for 55 percent of U.S. coffee consumption in 1950, but only 33 percent in 1970.

Colombian milds are generally grown in Colombia but some are also grown in Kenya and Tanzania. They are considered the premium coffee and are frequently marketed to consumers as 100 percent Colombian coffee. Other milds are grown in Latin America outside Brazil and Colombia, and to a limited extent in certain other African and Asian countries. Brazil also produces some of this type. Imports of Colombian milds accounted for 14 percent of U.S. coffee consumption in 1970, down from a peak of 27 percent in 1954. Conversely, imports of other milds accounted for 26 percent of U.S. consumption in 1970, up from 20 percent in 1950.

The consumption of coffee is increasing in all parts of the world except the United States, where there has been a 25 percent decline in per capita coffee consumption over the past 2 decades. Per capita consumption totaled 17.6 pounds (green bean basis) in 1949, declined to 15.3 pounds in 1955, after some recovery rose to 16 pounds in 1969, and declined further to 13.6 pounds in 1970 (Table 18).

Prices apparently have not played a major role in the declining consumption since 1949. U.S. green coffee prices have tended to remain relatively low compared with prices of many other commodities, except for infrequent erratic upward spurts reflecting occasional short crops. Sharp price rises occurred in 1950, 1954, 1970, and 1973. Significant price increases also occurred in 1951, 1956, and 1964 (Table 19).

Green coffee prices reflect not only the overall supply-demand situation for coffee, but also the supply-demand situation for each type. For example, the Brazilian coffee price rise in 1970 was due mainly to a very short crop. Despite the price increases, the impact on prices was cushioned some because

Table 16.--Coffee, exportable: Production in specified countries, average 1963-64/1967-68, annual 1968-69/1972-73 1/

Region and country	Average 1963-64/ 1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
	1,000 bags <u>2/</u>					
North America:						
Costa Rica.....	973	1,115	1,250	1,095	1,190	1,165
Cuba.....	--	--	--	--	--	--
Dominican Republic.....	464	365	450	505	490	485
El Salvador.....	1,919	1,755	2,350	2,015	2,440	2,335
Guadeloupe.....	1	3/	3/	3/	3/	3/
Guatemala.....	1,582	1,505	1,510	1,590	1,845	1,490
Haiti.....	353	295	260	350	370	350
Honduras.....	341	350	445	460	525	470
Jamaica .....	11	4	5	1	2	--
Martinique.....	--	--	--	--	--	--
Mexico.....	1,611	1,400	1,575	1,680	1,835	2,080
Nicaragua.....	450	495	495	570	615	485
Panama.....	22	11	18	9	18	15
Trinidad-Tobago.....	52	51	33	53	27	41
US-Hawaii.....	12	26	--	--	--	--
US-Puerto Rico.....	15	--	--	--	--	--
Total.....	7,806	7,372	8,391	8,328	9,357	8,916
South America:						
Bolivia.....	31	55	55	65	65	65
Brazil.....	16,229	8,000	10,250	1,500	14,850	14,000
Colombia.....	6,750	6,570	7,080	6,390	5,750	6,710
Ecuador <u>4/</u> .....	719	795	450	1,080	875	665
Guyana.....	2	2	2	--	--	--
Paraguay.....	42	40	25	13	43	38
Peru.....	661	645	720	760	800	800
Surinam.....	4	3	3	1	1	1
Venezuela.....	256	270	285	265	300	430
Total.....	24,694	16,380	18,870	10,074	22,684	22,709
Africa:						
Angola.....	3,023	3,040	3,200	3,200	3,300	3,250
Burundi.....	236	270	235	345	395	320
Cameroon.....	965	1,070	1,170	1,125	1,220	1,220
Cape Verde Islands.....	2	2	1	--	--	--
Cent. African Rep.....	164	155	195	150	165	190
Comoro Islands.....	1	1	1	1	1	1
Congo, Brazzaville.....	17	19	14	14	13	13
Dahomey.....	20	16	13	14	14	14
Equatorial Guinea.....	120	115	110	115	110	110
Ethiopia.....	1,297	1,420	1,375	1,450	1,490	1,530
Gabon.....	17	18	18	14	9	14
Ghana.....	55	70	81	62	67	57
Guinea.....	140	175	190	145	95	120
Ivory Coast.....	3,743	3,350	4,535	3,950	4,325	4,425
Kenya.....	752	780	880	988	973	872
Liberia.....	58	63	70	80	75	80
Malagasy Republic.....	832	785	710	1,175	835	865
Nigeria.....	40	43	30	65	55	70
Rwanda.....	162	190	135	255	245	220
Sao Tome-Principe.....	5	3	2	1	1	1
Sierra Leone.....	81	85	85	120	90	120
Tanzania.....	692	935	760	930	830	780
Togo.....	179	275	217	197	197	197
Uganda.....	2,606	3,320	3,335	2,985	2,830	2,830
Zaire (Congo, K).....	935	950	1,025	1,150	1,200	1,235
Total.....	16,142	17,150	18,387	18,531	18,535	18,534

Continued

See footnotes at end of table.

Table 16.--Coffee, exportable: Production in specified countries, average 1963-64/1967-68, annual 1968-69/1972-73 <sup>1/</sup> --Continued

Region and country	Average 1963-64/ 1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
	1,000 bags <sup>2/</sup>					
Asia:						
India.....	519	560	410	1,150	435	725
Indonesia.....	1,608	1,500	1,500	1,450	1,320	1,450
Malaysia.....	--	--	--	--	--	--
Philippines.....	--	--	--	22	--	5
Portuguese Timor.....	36	50	45	40	60	60
Vietnam, South.....	<sup>3/</sup>	<sup>3/</sup>	<sup>3/</sup>	<sup>3/</sup>	<sup>3/</sup>	<sup>3/</sup>
Yemen.....	65	60	50	50	50	50
Total.....	2,228	2,170	2,005	2,712	1,865	2,290
Oceania:						
New Caledonia.....	30	20	19	8	15	15
New Guinea.....	137	315	404	456	474	494
New Hebrides.....	4	3	2	1	1	1
Total.....	171	338	425	465	490	510
WORLD TOTAL.....	51,041	43,410	48,078	40,110	52,931	52,959

<sup>1/</sup> Coffee marketing year begins about July in some countries and in others about October. Exportable production represents total harvested production minus estimated domestic consumption.

<sup>2/</sup> Or 60 kilograms each.

<sup>3/</sup> Negligible.

<sup>4/</sup> As indicated in footnote 1, the coffee marketing year begins in some countries as early as July. Ecuador is one of these countries. Hence, the crop harvested principally during June-October 1971 in that country is shown as production for the 1971-72 marketing year. In Ecuador, however, this is referred to as the 1970-71 crop.

Note: Production estimates for some countries include cross-border movements.

Source: Foreign Agricultural Service. Prepared or estimated on the basis of official statistics of foreign governments, other foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of office research, and related information.



Table 17.-- United States coffee imports, by type, 1949-70 1/

Year	Colombian milds	Other milds	Unwashed arabica	Robusta	Total
	<u>Percent</u>				
1949.....	23.2	19.2	55.3	2.3	100
1950.....	21.7	20.0	55.3	3.0	100
1951.....	23.1	21.6	52.7	4.2	100
1952.....	21.5	22.2	50.1	4.6	100
1953.....	25.5	23.9	45.0	5.6	100
1954.....	26.7	25.2	41.8	6.3	100
1955.....	25.0	24.3	43.0	7.7	100
1956.....	22.5	24.0	44.6	8.9	100
1957.....	21.3	25.1	43.8	9.8	100
1958.....	21.2	25.2	43.5	10.1	100
1959.....	21.1	24.6	43.5	10.8	100
1960.....	20.4	22.8	44.3	12.5	100
1961.....	19.3	23.5	41.8	15.4	100
1962.....	18.4	23.4	41.1	17.1	100
1963.....	18.0	24.2	39.0	18.8	100
1964.....	17.3	25.2	36.8	20.7	100
1965.....	16.2	26.1	34.1	23.6	100
1966.....	15.1	26.1	33.8	25.0	100
1967.....	14.1	24.0	35.7	26.2	100
1968.....	14.0	24.4	35.8	25.8	100
1969.....	13.8	24.7	34.4	27.1	100
1970.....	14.4	25.5	32.6	27.5	100

1/ Based on 3-year moving average of data on green bean equivalent.

Table 18.--Relation of age to per capita coffee consumption, United States, 1954-70

Age group	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
	6-oz. cups per person per day 1/																
Under 10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10 to 14	0.17	0.16	0.14	0.16	0.14	0.14	0.14	0.13	0.14	0.14	0.12	0.09	0.13	0.14	0.10	0.09	0.11
15 to 19	.84	.83	.87	.86	.88	.85	.77	.80	.77	.63	.58	.69	.72	.59	.60	.64	.63
20 to 24	2.03	2.09	2.07	2.18	2.27	2.16	2.20	2.32	2.22	1.97	1.85	1.85	1.78	1.78	1.73	1.56	1.49
70 and older	1.74	1.68	1.70	1.78	1.79	1.80	1.84	1.88	1.88	1.92	1.94	2.02	2.05	1.95	1.92	1.93	1.95
Average	.62	.61	.60	.62	.64	.62	.62	.64	.64	.60	.58	.61	.63	.61	.60	.60	.60
25 to 29	2.53	2.56	2.64	2.80	2.81	2.87	2.78	2.87	2.99	2.91	2.75	2.69	2.65	2.51	2.45	2.31	2.19
30 to 39	2.72	2.75	2.81	3.03	3.21	3.08	3.11	3.41	3.47	3.35	3.20	3.25	3.26	3.21	3.21	3.04	2.95
40 to 49	2.64	2.70	2.83	2.96	3.07	3.02	3.08	3.35	3.41	3.38	3.33	3.24	3.39	3.38	3.26	3.25	3.21
50 to 59	2.36	2.38	2.42	2.53	2.69	2.68	2.71	2.93	2.97	2.92	2.83	2.91	2.99	2.95	2.99	3.03	3.06
60 to 69	2.10	2.10	2.12	2.16	2.18	2.20	2.30	2.36	2.42	2.45	2.36	2.39	2.48	2.49	2.42	2.38	2.42
Average	2.52	2.55	2.62	2.76	2.87	2.83	2.86	3.07	3.14	3.08	2.97	2.97	3.04	3.00	2.95	2.89	2.85
U.S. average	2.04	2.08	2.10	2.19	2.25	2.20	2.21	2.34	2.36	2.28	2.19	2.19	2.22	2.17	2.13	2.08	2.04
	Pounds per person per year (green bean basis)																
Under 10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10 to 14	1.3	1.2	1.0	1.2	1.0	1.0	1.0	.9	.9	1.0	.8	.6	.8	.9	.7	.6	.7
15 to 19	6.4	6.2	6.5	6.2	6.2	6.2	5.5	5.4	5.2	4.3	4.0	4.6	4.7	3.9	4.0	4.3	4.2
20 to 24	15.5	15.5	15.4	15.7	16.0	15.7	15.8	15.8	15.0	13.5	12.8	12.4	11.5	11.7	11.5	10.4	9.9
70 and older	13.3	12.5	12.6	12.8	12.6	13.1	13.2	12.8	12.7	13.1	13.4	13.6	13.3	12.9	12.8	12.9	13.0
Average	4.7	4.5	4.5	4.5	4.5	4.5	4.5	4.3	4.3	4.1	4.0	4.1	4.1	4.0	4.0	4.0	4.0
25 to 29	19.3	19.0	19.6	20.2	19.9	20.9	20.0	19.5	20.1	19.9	19.0	18.1	17.2	16.5	16.3	15.4	14.6
30 to 39	20.8	20.4	20.9	21.9	22.7	22.4	22.4	23.2	23.4	22.9	22.1	21.8	21.1	21.2	21.4	20.3	19.7
40 to 49	20.2	20.1	21.0	21.4	21.7	22.0	22.2	22.8	23.0	23.1	23.0	21.7	22.0	22.3	21.7	21.7	21.4
50 to 59	18.0	17.7	18.0	18.3	19.0	19.5	19.5	19.9	20.0	20.0	19.5	19.5	19.4	19.4	19.9	20.2	20.4
60 to 69	16.1	15.6	15.7	15.6	15.4	16.0	16.5	16.0	16.3	16.8	16.3	16.0	16.1	16.4	16.1	15.9	16.1
Average	19.3	18.9	19.5	19.9	20.3	20.6	20.6	20.9	21.2	21.1	20.5	19.9	19.7	19.8	19.7	19.3	19.0
U.S. average	15.6	15.3	15.6	15.8	15.9	16.0	15.9	15.9	15.9	15.6	15.1	14.7	14.4	14.3	14.2	13.9	13.6
	Age distribution, percent of total population																
Under 25	42.3	42.6	42.9	43.4	43.8	44.3	44.7	45.1	45.6	46.0	46.3	46.1	46.7	46.7	46.5	46.4	46.3
25 and older	57.7	57.4	57.1	56.6	56.2	55.7	55.3	54.9	54.4	54.0	53.7	53.4	53.3	53.3	53.5	53.6	53.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 & over 69	47.6	47.9	48.4	48.8	49.4	49.9	50.4	51.0	51.5	51.9	52.3	52.7	52.8	52.9	52.7	52.7	52.6
25 to 60	52.4	52.1	51.6	51.2	50.6	50.1	49.6	49.0	48.5	48.1	47.7	47.3	47.2	47.1	47.3	47.3	47.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Cup consumption adapted from data reported by Pan American Coffee Bureau.

2/ Not reported, but believed very small.

Table 19.--U.S. coffee prices, 1949-70

	Wholesale (New York)--green beans, per pound										Retail, per unit									
Year	Colom- bian, Mani- zales	Mexican washed	Brazil- ian Santos No.4	Robusta, Ambriz, No.BB	Index, 1962 =100	1-lb.: can	1-lb.: bag	In- dex: 1962: =100	6-oz.: jar	In- dex: 1962: =100	Cup of coffee in eating and drinking places 1962: 6-oz.: Index, : =100: cup :1962=100									
					</															

Source: Price per 6-oz. cup of coffee from Pan American Coffee Bureau; all other data from Bur. Labor Stat.



Brazil had more than enough stocks to meet its international commitments. The short Brazilian crop also affected prices of other coffees, to a lesser extent.

U.S. retail coffee prices tend to lag changes in wholesale prices by 6 to 9 months. While wholesale prices can change sharply in a month or two, retail price changes tend to be smaller and spread out over more months. Moreover, while increases in wholesale prices may be fully reversed when world supplies become adequate, U.S. retail coffee prices in recent years have not declined as much as they had previously increased. The resulting upward drift reflects rising processing and distribution charges.

Retail prices of instant coffee have been even less flexible. This resistance to sharp changes seems to exist when wholesale prices are advancing as well as when they decline.

Three coffee importers were interviewed in New Orleans and one in San Francisco. These coffee importers were interested mostly in arabica coffees--premium types grown at high elevations. Robusta coffees are low grade, low priced, and widely produced coffees which are sold almost entirely on price.

The respondents concurred that they were interested in dealing only with large shippers or agents who would honor commitments regardless of world market prices. For example, one of the importers will buy Indonesian coffee only from one large Dutch exporter who has organized the Indonesian coffee growers in his locality. Previous dealing with independent growers had been unsatisfactory when the grower had failed to fill a contract at a specified price when the world price of coffee rose.

Coffee is bought on the basis of descriptions and samples. There are no set specifications. Coffee is shipped in burlap or jute bags weighing 132 pounds per bag. Bags should be clearly and correctly marked with description of contents and "Product of Vietnam" or plantation mark.

Since the world has an abundant quantity of robusta coffees, it would be difficult to break into the coffee market unless a premium robusta or arabica coffee could be produced.

A Green Coffee Association Contract allows 1 percent loss in weight from time of shipment to unloading at New Orleans or other port. If Vietnamese producers are interested in coffee exports they should send one kilogram samples to the importers listed below. A minimum shipment of coffee is 250 bags, weighing  $\pm$  132 pounds each. Terms of shipment may be f.o.b. country of origin, c.i.f., or c.f., but terms of sale and shipment should be uniform at all times after initial shipment so buyer and seller will fully understand each other.

The coffee importers interviewed were:

California Commodities, Inc.  
320 California Street  
San Francisco, California 94104

Westfeldt Brothers, Inc.  
P.O. Box 51750  
New Orleans, Louisiana 70150

A. C. & Leon Israel Coffee Company  
300 Magazine Street  
New Orleans, Louisiana 70150

J. Aron Company  
336 Magazine Street  
New Orleans, Louisiana 70150

One coffee roaster was also interviewed:

M. J. B. Coffee Company  
665 Third Street  
San Francisco, California 94107

## U.S. MARKET FOR PORK AND PORK PRODUCTS

As disposable personal income rises in the United States, consumers tend to switch from inferior food products usually heavy in carbohydrates to more meats, fruits, and vegetables. Further, more and more emphasis is placed upon the quality of meats consumed. The desirable attributes are leanness, less fat, right amount of juiciness, better taste, and consistent, attractive color.

Self-sufficiency in pork production in the United States and U.S. sanitary and quarantine regulations limit the importation of pork except from Canada and a small number of European countries.

## GENERAL DOMESTIC PRODUCTION AND CONSUMPTION SITUATION

Consumption of red meat increased rapidly in the United States after World War II. On a per capita basis, consumption in 1972 was 188 pounds, an increase of 43 pounds from the 1947-49 annual average (Table 20 and Figure 3). Similarly, per capita poultry consumption increased from 22 pounds to 52 pounds in the same period. However, the rapid rise in per capita red meat consumption is mainly attributed to beef; beef consumption nearly doubled (from 66 pounds in 1947-49 to 116 pounds in 1972) while the per capita consumption of veal, lamb, and mutton decreased. Per capita pork consumption varied only slightly through the recent years, with a low of 57 pounds in 1965 to a high of 73 pounds in 1971 (Table 21). In other words, the increase in total pork consumption in the United States by and large resulted from the increase in total population. Among the reasons for this are: (1) as incomes rise, consumers turn to beef; (2) the mass production and low price of broilers; and (3) consumer attitude toward pork, i.e., high cholesterol fat content, lack of standards or grades, and the fear of contracting trichinosis from eating poorly cooked pork.

Pork is sold in the United States usually in the form of the following retail cuts: (1) loins, (2) ribs, (3) butts, (4) hams, (5) picnics, (6) bacon, (7) sausage, and (8) lunch meats, excluding waste, lard, and other edible byproducts. The first three cuts, loins, ribs, and butts, which constitute about 33 percent of the salable retail cuts, are sold as fresh products while



the remaining are sold as cured or processed products (Figure 4). In 1971, approximately one-fifth to one-fourth of the ham was canned. 1/

Table 20.--U.S. per capita consumption of red meats and poultry, by kind, 1947-49, 1964, and 1972

Meat	: 1947-49	: 1964	: 1972
	: average		
	: - - - - -	<u>Pounds</u>	- - - - -
Red meat:	:		
Beef.....	65.6	98.7	115.7
Veal.....	9.7	4.8	2.1
Lamb and mutton.....	4.8	4.2	3.3
Pork (excluding lard).....	68.4	62.5	66.9
	:		
Total red meat.....	148.5	170.2	188.0
	:		
Poultry.....	22.0	38.5	51.8

Sources: Poultry and Egg Situation, selected issues, Economic Research Service, U.S. Department of Agriculture.

Livestock and Meat Statistics, Statistical Bulletins Nos. 233 and 333, and supplements, ERS, USDA.

Livestock and Meat Situation, 1972, ERS, USDA.

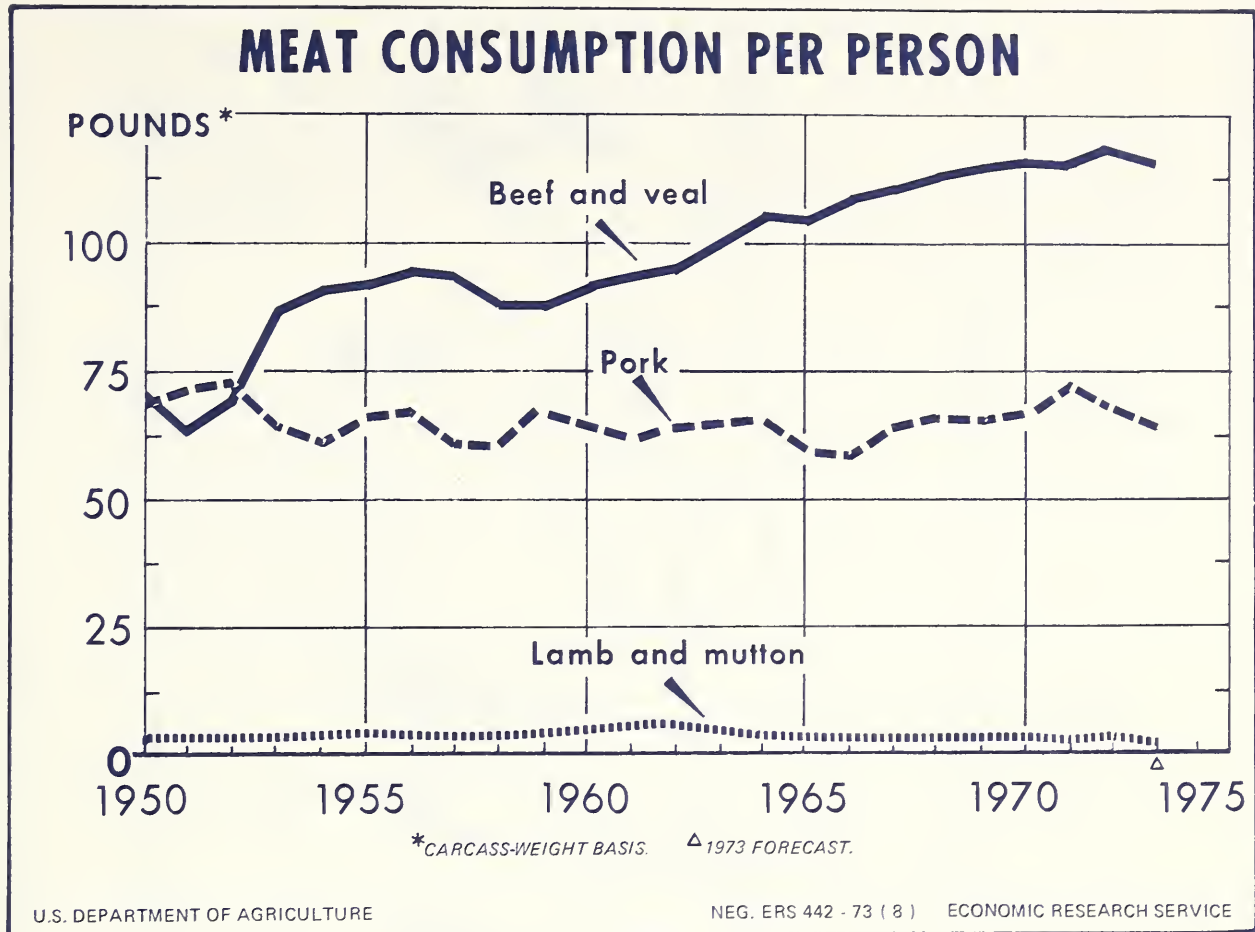
## TRADE SITUATION

The United States has imported about 3 percent of its total annual pork consumption in recent years (Table 21). In 1971, 355 million pounds of pork were imported (Table 22). Of this amount, three-fourths were hams and shoulders--cooked, boned, and canned--while fresh pork amounted to 17.5 percent (Table 23). The remaining 8 percent included uncooked hams and shoulders, sausage, bacon, and other pork products.

In 1971, Denmark and the Netherlands provided about three-fourths of the canned hams and shoulders imported by the United States (Table 23). Poland ranked third with 17 percent. Canada supplied virtually all fresh pork imports, 99.88 percent, due to its ability to produce quality hogs and its geographical advantage in supplying fresh pork to neighboring U.S. states across the border. This is clearly shown by the ports of entry and points of unloading for fresh pork (Table 24).

1/ Livestock and Meat Statistics, Statistical Bulletin No. 333, 1971 supplement, Economic Research Service, U.S. Department of Agriculture, Table 226.

Figure 3



The dominant position of canned hams and shoulders from Denmark, the Netherlands, and Eastern European countries is mainly due to the high quality of these products and the fact that they have been fairly established as specialty food items for a certain clientele. Consequently, the price of the products is high relative to domestic products. Also, they maintain very stable price levels in spite of domestic fluctuations in hog and pork prices.

#### MARKET POTENTIAL

At this time, the potential for South Vietnam to export pork and pork products to the United States is highly questionable. The most serious obstacle is the U.S. sanitary and quarantine restrictions on meats and meat products. The existence of foot-and-mouth and other hog diseases nearly prevents any U.S. imports of fresh pork or processed pork products from South Vietnam.

For the importation of processed meats to take place at all, the Government of Vietnam would, through diplomatic channels, request the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, to inspect the plants in Vietnam which would process the products intended for export. APHIS would inspect both the facilities involved and the GVN meat inspection and quality control procedures for comparability with U.S. standards. On the

Figure 4

# RETAIL PORK CUTS

% OF RETAIL CUTS

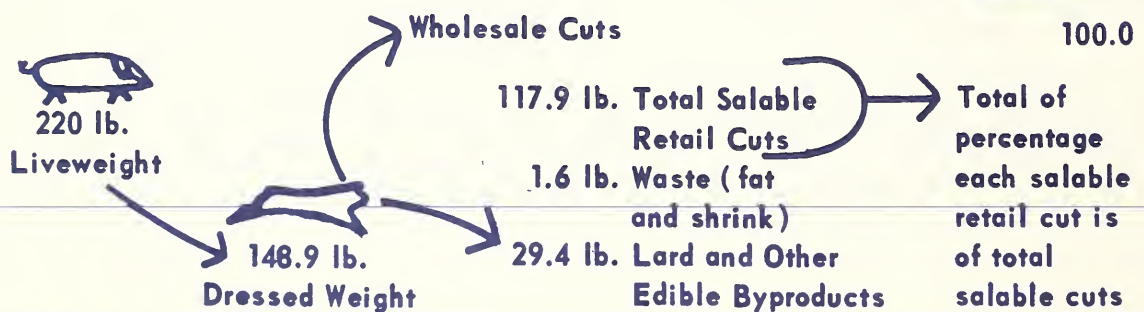
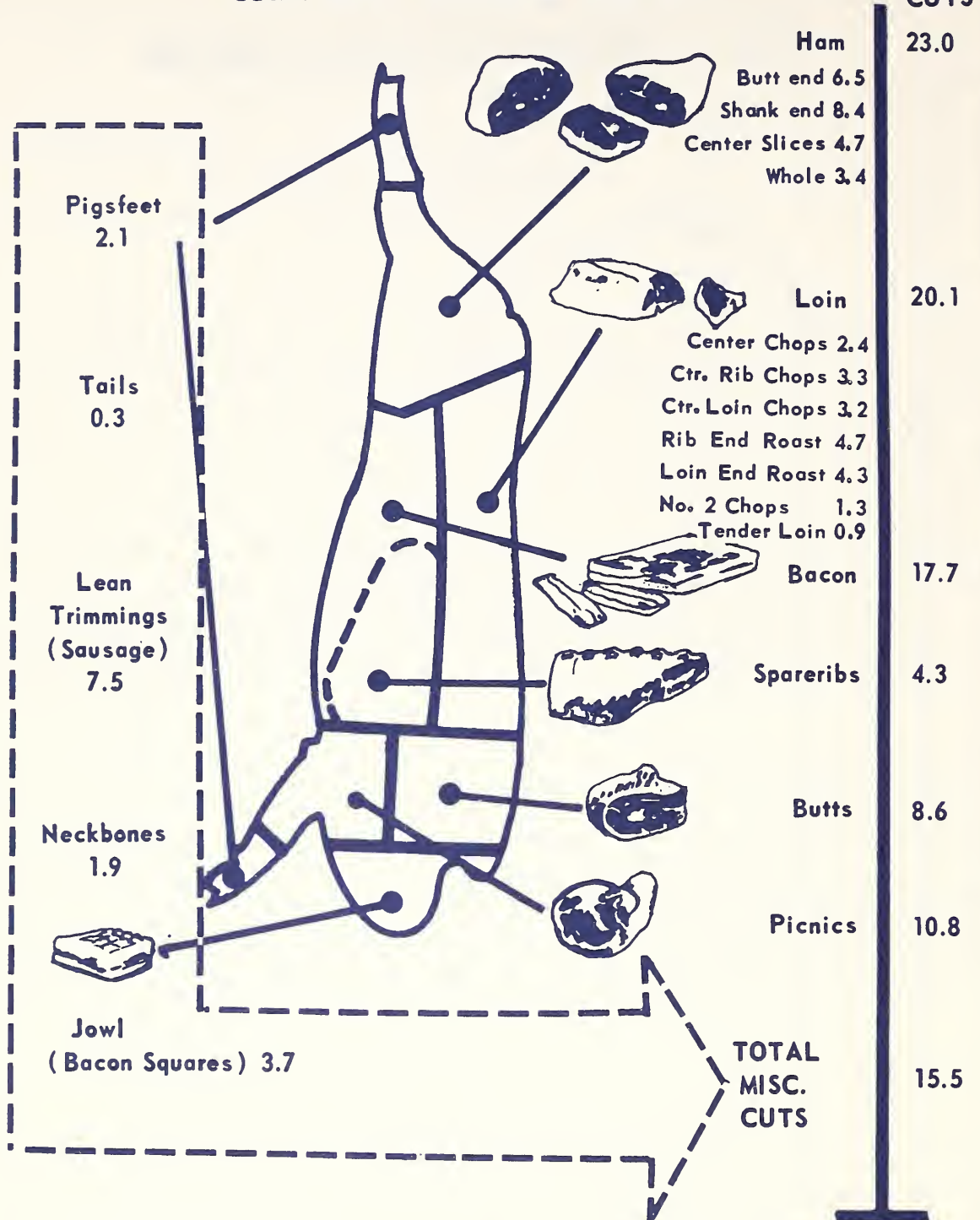






Table 22.--U.S. pork imports by kinds and country of origin, by weight, 1971

Country	Fresh	Ham and shoulder		Bacon		Sausage		Pork-NSPF		Total
		Not cooked	Cooked	Not cooked	Cooked	Not cooked	Cooked	Not cooked	Cooked	

Source: U.S. Foreign Agricultural Trade Statistical Report, 1971, Economic Research Service, U.S. Department of Agriculture.

Table 23.--U.S. pork imports by kinds and country of origin, by percent, 1971

Country	Fresh	Ham and shoulder		Bacon		Sausage		Pork-NSPF	Total	
		Cooked		Not cooked		Cooked				
		Not cooked	Cooked	Not cooked	Cooked	Not cooked	Cooked			
		<u>Percent</u>								
Canada.....	99.88	54.43	0.62	96.56	4.39	51.48	--	--	19.29	
Denmark.....	--	20.45	44.02	--	93.66	43.73	25.32	25.32	36.04	
Netherlands.....	--	13.75	30.53	--	--	3.37	9.42	9.42	23.24	
Poland.....	--	--	17.41	--	--	--	57.15	57.15	15.45	
Hungary.....	--	--	1.73	--	--	--	--	--	1.29	
Yugoslavia.....	--	--	3.98	--	--	--	5.76	5.76	3.22	
West Germany.....	--	9.77	0.54	--	--	--	--	--	0.43	
Bel-Lux.....	--	0.23	--	--	--	--	--	--	--	
Czechoslovakia...	--	--	0.67	--	--	--	--	--	0.50	
Austria.....	--	--	--	--	--	0.24	--	--	--	
Ireland.....	--	--	--	2.63	--	--	--	--	0.01	
Other.....	0.12	1.37	0.48	0.81	0.55	1.17	2.35	2.35	0.53	
TOTAL.....	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
Percent by kind..	17.53	0.25	74.51	0.59	1.75	1.04	4.34	4.34	100.00	

Table 24.--U.S. ports of entry and points of unloading for pork imports, by country of origin, 1971

Origin	Port of entry and point of unloading
Canada.....	Portland, Maine; Ogdensburg, N.Y.; Buffalo, N.Y.; Seattle, Wash.; Great Falls, Mont.; Pembina, N.D.; Detroit, Mich.; Chicago, Ill.; Cleveland, Ohio; Miami, Fla.; Honolulu, Hawaii
Denmark.....	N.Y., N.Y.; L.A., Calif.; Seattle, Wash.; San Juan, P.R.; Miami, Fla.; Houston, Texas; El Paso, Texas; Boston, Mass.; Philadelphia, Pa.; Baltimore, Md.; Norfolk, Va.; San Francisco, Calif.; Honolulu, Hawaii; Nogales, Ariz.; Chicago, Ill.
Netherlands.....	N.Y., N.Y.; Philadelphia, Pa.; S.F., Calif.; Baltimore, Md.; Norfolk, Va.; L.A., Calif.; San Juan, Puerto Rico
West Germany.....	N.Y., N.Y.
Switzerland.....	S.F., Calif.; L.A., Calif.
Austria.....	Detroit, Mich.
Poland.....	N.Y., N.Y.; Phil., Pa.; Baltimore, Md.; San Juan, P.R.
Yugoslavia.....	N.Y., N.Y.
Romania.....	N.Y., N.Y.
Bulgaria.....	N.Y., N.Y.
Czechoslovakia.....	N.Y., N.Y.

Source: Monthly issues of U.S. Imports for Consumption and General Imports, 1971, IM 145, Bureau of Census, U.S. Department of Commerce.

outside chance that all of this proves out (and this takes a lot of time; APHIS would not hazard a guess), the Vietnam processing plants would be published as authorized and approved sources of meat products for the U.S. market. Such plants would be subject to APHIS inspection from then on.

For long-run prospects, given the elimination of the above-mentioned sanitary barriers, Vietnam must meet the following conditions to compete with products that have already become entrenched in the U.S. market:

1. Acquire proper breeds and types of hogs that will yield the lean and tasty pork that Americans prefer.
2. Set up an efficient production and marketing system to insure that a stable supply of hogs will reach the packing plants.
3. Develop a modern canning industry to produce products that will meet U.S. quality and sanitation requirements.
4. Be efficient in production so it will be profitable to sell the products to the United States at a price competitive with the prices charged by the European suppliers.
5. Break into a well-established market for the U.S. customer's acceptance in general.

Therefore, it is imperative that the mentioned conditions be met, and a heavy promotional campaign be undertaken, if the Vietnamese products are to compete with current U.S. imports. It should be noted that far greater resources would be required for South Vietnam to export pork products to the U.S. and to meet the U.S. product standards than would be required to export to nearby potential markets.

## THE U.S. MARKET FOR SUGAR

The workings of the U.S. sugar supply and distribution system are mainly institutional rather than economic. The U.S. Sugar Act of 1948 and its Amendments control sugar production, marketing, and imports. This Act authorized the Secretary of Agriculture to (1) set U.S. sugar requirements each year; (2) establish the sugar quota, domestic and foreign; (3) provide marketing allotments for domestic processors; (4) limit individual farm production to meeting domestic consumption and maintaining inventories; (5) make grower payments; and (6) obtain equitable division of sugar returns among beet and cane growers, farm workers, and processors.

## DOMESTIC AND TRADE SITUATIONS

The United States consumes about 12 million short tons of raw sugar annually, roughly 46 percent imported (Table 25). 2/ The amount that is imported

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2/ The U.S. Sugar Program, ASCS Background Information BI No. 14, Agricultural Stabilization and Conservation Service, U.S. Dept. Agr., May 1972, p. 6.



Table 25.--U.S. sugar quotas, permanent and temporary

Country	Permanent quota	Temporary quota <u>1/</u>
	<u>Percent</u>	
Western Hemisphere:		
Dominican Republic.....	12.80	3.98
Mexico.....	11.32	3.52
Brazil.....	11.04	3.44
Peru.....	7.90	2.46
West Indies.....	4.12	1.28
Ecuador.....	1.63	.51
Argentina.....	1.53	.48
Costa Rica.....	1.38	.43
Colombia.....	1.36	.42
Panama <u>2/</u> .....	1.29	.40
Nicaragua.....	1.29	.40
Venezuela.....	1.23	.38
Guatemala.....	1.18	.37
El Salvador.....	.86	.27
British Honduras.....	.68	.21
Haiti.....	.62	.19
Bahamas.....	.54	.17
Honduras.....	.24	.08
Bolivia.....	.13	.04
Paraguay.....	.13	.04
Subtotal.....	61.27	19.07
Outside Western Hemisphere:		
Australia.....	5.02	1.56
Republic of China.....	2.09	.65
India.....	2.01	.63
South Africa.....	1.42	.44
Fiji.....	1.10	.34
Mauritius.....	.74	.23
Swaziland.....	.74	.23
Thailand.....	.46	.14
Southern Rhodesia <u>3/</u> .....	.37	.12
Malawi <u>2/</u> .....	.37	.12
Uganda.....	.37	.12
Malagasy Republic.....	.30	.09
Subtotal.....	14.99	4.67
TOTAL.....	76.26	23.74

1/ Cuba's share (23.74 percent of all foreign quotas other than the Philippines) is withheld during the suspension of diplomatic relations. Cuba's share of the quota at the 10 million ton requirements level or less is prorated to all other quota countries except the Philippines; Cuba's share of total requirements in excess of 10 million tons is prorated to Western Hemisphere countries only. The percentages shown illustrate the temporary quota for each country when requirements are at the 10 million ton level. 2/ In 1972 the quota for Panama was 0.85 percent, and for Malawi, zero percent. The quotas for other countries were increased proportionately. 3/ While Southern Rhodesia's quota is withheld its share is prorated to Western Hemisphere countries in proportion to their permanent quota.

varies from year to year, depending on the domestic and world sugar production situation.

Since the enactment of the Sugar Act in 1948, the U.S. Congress has passed eight Amendments to the Act. One of the changes made allows Congress to add quota to, delete, or withhold quota from foreign countries. For example, the import quota allotted to Cuba was withheld in 1961 and distributed as a temporary quota to other countries.

In 1972, 32 countries were granted quotas to ship sugar to the United States. Twenty of these 32 countries were in the Western Hemisphere. They were allotted 80.14 percent of the foreign permanent and temporary quota, 61.27 and 19.07 percent, respectively (Table 26). 3/

#### MARKET POTENTIAL

As indicated, the possibility of South Vietnam's exporting sugar to the United States hinges not on economic and/or technical factors but on institutional factors. A sugar quota can only be established through enactment by the U.S. Congress.

For further details on the U.S. Sugar Act of 1948, its interpretation, and other background information, see:

1. Sugar Act of 1948, Sugar Division, Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture, October 1971.
2. The U.S. Sugar Program, ASCS Background Information BI No. 14, Agricultural Stabilization and Conservation Service, U.S. Dept. of Agriculture, May 1972.

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3/ Ibid., page 10.

Table 26.--Adjusted U.S. sugar quotas, 1968-1971

Area	1968	1969	1970	1971
	Short tons, raw value			
<u>Domestic</u>				
Mainland: Beet.....	3,115,667	3,215,667	3,597,000	3,406,333
Cane.....	1,204,000	1,169,333	1,308,000	1,256,000
Hawaii.....	1,191,704	1,190,673	1,145,486	1,110,000
Puerto Rico.....	515,000	370,897	360,000	150,000
Total domestic areas..	6,026,371	5,946,570	6,410,486	5,922,333
<u>Foreign</u>				
Philippines.....	1,126,020	1,126,020	1,301,020	1,593,733
Argentina.....	76,255	78,809	78,509	74,384
Australia.....	203,276	192,937	206,270	205,045
Bahamas.....	--	10,000	10,000	10,000
Bolivia.....	7,103	7,625	7,599	7,199
Brazil.....	619,881	640,638	638,210	604,675
British Honduras.....	15,880	16,568	15,782	15,200
British West Indies.....	217,971	227,455	216,645	208,645
China, Republic of.....	84,698	80,390	85,946	85,435
Colombia.....	65,594	67,792	67,537	63,988
Costa Rica.....	73,264	75,420	75,133	71,185
Dominican Republic.....	707,030	693,068	678,209	655,960
Ecuador.....	90,193	93,216	92,860	87,982
El Salvador.....	45,279	46,609	46,429	43,989
Fiji Islands.....	44,608	42,339	45,265	44,996
French West Indies.....	66,237	71,550	68,149	65,633
Guatemala.....	61,743	63,557	63,314	59,986
Haiti.....	27,420	17,419	26,176	23,066
Honduras.....	7,406	7,625	7,599	7,199
India.....	81,311	77,175	82,508	82,018
Ireland.....	5,351	5,351	5,351	5,351
Malagasy Republic.....	9,600	9,111	9,740	9,682
Mauritius.....	18,633	17,686	18,909	18,796
Mexico.....	633,819	655,044	652,559	618,272
Nicaragua.....	54,835	71,925	75,133	71,185
Panama.....	37,439	44,440	39,500	44,792
Peru.....	494,431	300,000	455,991	482,302
South Africa.....	59,854	56,808	60,735	60,374
Swaziland.....	7,342	6,967	7,448	7,405
Thailand.....	--	17,686	18,909	18,796
Venezuela.....	31,156	32,200	32,079	30,394
Total foreign.....	4,973,629	4,853,430	5,189,514	5,377,667
TOTAL REQUIREMENTS.....	11,000,000	10,800,000	11,600,000	11,300,000

## APPENDIX A

### Listing of Processor, Agent, Government, and Port Facility Contacts

Contacts in the U.S. specialty food and spice trade:

McCormick and Company  
Baltimore, Maryland  
(Mr. Thomas Miller and Mr. Thomas Burns)

Karl H. Landes and Company, Inc.  
New York, New York  
(Mr. Joseph Landes and Mr. Alan B. Clarke)

Greenwich Mills  
520 Secaucus Road  
Secaucus, New Jersey  
(Mr. Christopher Hulbert)

Brooke-Bond Foods  
2 Nevada Drive  
Lake Success, New York  
(Messrs. Koehler, Ehler, Rodriguez, Cahill and Mintz)

Westfeldt Brothers, Inc.  
P. O. Box 51750  
New Orleans, Louisiana  
(Mr. Albert Barrientos, Jr., and Mr. Nadal Domenge)

Oscar Mayer Company  
Madison, Wisconsin  
(Mr. Walt Brager and Dr. Pat Luby)

Great China Food Products Company  
2520 - 58 S. State Street  
Chicago, Illinois  
(Mr. Joseph Woo)

La Choy Foods (Div. of Beatrice Foods)  
Archbold, Ohio  
(Mr. J. McRobbie and Mr. L. Fankhauser)

J. Aron Company  
336 Magazine Street  
New Orleans, Louisiana  
(Mr. Alan Bories)



A. C. and Leon Israel Company  
300 Magazine Street  
New Orleans, Louisiana  
(Mr. Louis Castaing)

S. S. Pierce Company  
10 Wildwood Avenue  
Woburn, Massachusetts  
(Mr. Frank O'Neill)

Archibald & Kendall, Inc.  
6819 W. North Avenue  
Oak Park, Illinois  
(Mr. Jerry Crummett)

Glidden - Durkee  
900 Union Commerce Bldg.  
Cleveland, Ohio  
(Mr. William Ash)

Reese Finer Foods  
2150 E. Tenth Street  
Los Angeles, California  
(Mr. Morris Kushner)

Simex International  
331 Clement Street  
San Francisco, California  
(Messrs. Mel and Roger Santander)

M. J. B. Company  
665 Third Street  
San Francisco, California  
(Mr. Robert E. Salter)

Spice Islands Division of Specialty Brands, Inc.  
100 E. Grand Avenue  
South San Francisco, California  
(Mr. Neal Brunckhorst)

R. J. Reynolds Food, Inc. (RJR)  
New York, New York  
(Mr. Don Harris)

Brokers and agents include:

George Uhe Company, Inc.  
76 Ninth Avenue  
New York, New York  
(Mr. A. Weening and Mr. J. Shearman)

B. C. Ireland, Inc.  
220 Jackson Street  
San Francisco, California

Johnson - O'Hare Company, Inc.  
1616 Soldiers Field Road Extension  
Boston, Massachusetts  
(Mr. Harry O'Hare)

Sources of processing and packaging research and industry statistics and regulations include:

Director, Plant Protection and Quarantine Program  
Animal and Plant Health Inspection Service  
U.S. Department of Agriculture  
Hyattsville, Maryland

Western Regional Research Laboratory  
Agricultural Research Service, USDA  
500 Buchanan Street  
Albany, California  
(Mr. Robert Enochian and Mr. Jack Meehan)

National Cannery Association  
1950 Sixth Street  
Berkeley, California  
(Mr. Jack Ralls)

American Spice Trade Association, Inc.  
580 Sylvan Avenue  
Englewood Cliffs, New Jersey  
(Mr. Edward McNeill)

Port authority contacts include the following:

Port Authority of New York and New Jersey  
111 Eighth Avenue  
New York, New York  
(Mr. Russell Smith and Mr. Harry Carey)

San Francisco Port Authority  
Ferry Building  
San Francisco, California  
(Mr. Don Taggart)

Port of New Orleans  
P. O. Box 60046  
New Orleans, Louisiana 70160  
(Mr. Edward S. Reed)

Baltimore Port Authority  
Baltimore, Maryland  
(Mr. Leonard Levering)

Food trade organizations which hold periodic conventions for displaying new food items:

National Food Brokers Association  
1916 M Street, N.W.  
Washington, D.C.

National Association for the Specialty Food Trade  
331 Madison Avenue  
New York, New York

National Food Distributors Association  
116 East Wacker Drive  
Chicago, Illinois





## APPENDIX C

### DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE FOOD AND DRUG ADMINISTRATION [21 CFR Part 128]

#### NOTICE OF PROPOSED RULE MAKING ON NATURAL OR UNAVOIDABLE DEFECTS IN FOOD FOR HUMAN USE THAT PRESENT NO HEALTH HAZARD

Consumers, industry, the news media, and others have requested that the Food and Drug Administration make public the levels of natural or unavoidable defects in food for human use which are used in considering recommendations for regulatory actions.

The necessity for establishing some defect levels was recognized soon after passage of the 1906 Federal Food and Drugs Act. One of the earliest defect levels was a limitation on mold in tomato pulp and was established in 1911. In the years following, defect levels were established for an increasing number of foods. In the 1920's, limits for insect infestation were set for various fruits and vegetables. After passage of the 1938 Federal Food, Drug, and Cosmetic Act, new and more sensitive analytical methodology for the detection of insect fragments was developed. Even though defect levels have been established for an increasing number of foods, the limits of natural and unavoidable defect levels over the years have been and will continue to be reduced.

This notice does not cover defect levels in food for poisonous or deleterious substances which cannot be avoided by good manufacturing practices. Section 406 of the act authorizes the Food and Drug Administration to establish tolerances for such ingredients in food where they are justified. In the past, rather than issue such tolerances, the Food and Drug Administration has handled these matters informally as action guidelines. In the future, specific tolerances will be established under the procedures contained in section 406 of the act.

None of the product defect levels being made public are being established for the first time. All have existed for some time, and, as noted, some pre-date enactment of the 1938 statute. Objective findings of such levels without evidence of the history of the production of the food render the product adulterated, even though no health hazard is presented. Thus, appropriate regulatory action is taken whenever the stated defect levels are exceeded. Whether the level of defect in the food was acquired during the growth, processing, storage, or shipment is immaterial. When evidence of insanitary conditions of production or storage is known, action may be taken against products with lower defect levels.

The fact that a defect level has been established for a specific food does not mean that a manufacturer need only meet that level. Poor manufacturing

practices also render a product adulterated and subject to appropriate regulatory action.

Few foods contain no natural or unavoidable defects. Even with modern technology, all defects in foods cannot be eliminated. Foreign material cannot be wholly processed out of foods, and many contaminants introduced into foods through the environment can be reduced only by reducing their occurrence in the environment. The food industry must, nevertheless, continually strive to minimize the presence of natural and unavoidable defects in foods, and defect levels have been and will continue to be reduced as improvements are made.

The defect levels set by the Commissioner of Food and Drugs represent a level below which the defect is both unavoidable under current technology and presents no health hazard. The Commissioner has concluded that the public is entitled to this information.

Therefore, pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 321 et seq., 52 Stat. 1040 et seq. as amended; 21 U.S.C. 321 et seq.) and under authority delegated to him (21 CFR 2.120), the Commissioner of Food and Drugs proposes to amend Part 128 by adding the following new section:

128.10 Natural or unavoidable defects in food for human use that present no health hazard.

(a) Some foods, even when produced under current good manufacturing and/or processing practices, contain natural or unavoidable defects at low levels that are not hazardous to health. The Food and Drug Administration establishes maximum levels for such defects in foods produced under good manufacturing and/or processing practices and uses these levels for recommending regulatory actions.

(b) Defect levels are established for products whenever it is necessary and feasible. Such levels are subject to change upon the development of new technology or the availability of new information.

(c) Compliance with defect levels does not excuse failure to observe either the requirement in section 402(a)(4) of the Federal Food, Drug, and Cosmetic Act that food may not be prepared, packed, or held under insanitary conditions or the other requirements in this part that food manufacturers must observe current good manufacturing practices. Evidence obtained through factory inspection indicating such a violation renders the food unlawful, even though the amounts of natural or unavoidable defects are lower than the currently established levels. The manufacturer of food must at all times utilize quality

control procedures which will reduce natural or unavoidable defects to the lowest level currently feasible.

(d) A food with permitted amounts of a current defect level may not be mixed with another lot of the same product with an impermissible amount of a current defect level. Such mixing renders the final food unlawful.

(e) Current levels for natural or unavoidable defects in foods may be obtained upon request at the Office of the Assistant Commissioner for Public Affairs, Food and Drug Administration, Room 15B-42, 5600 Fishers Lane Rockville, Maryland 20852.

*Interested persons may, within 60 days after publication hereof in the FEDERAL REGISTER, file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 6-88, 5600 Fishers Lane Rockville, Md. 20852, written comments (preferably in quintuplicate) regarding this proposal. Comments may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.*

Dated: 3/23/72

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OFFICE OF THE ASSISTANT COMMISSIONER FOR PUBLIC AFFAIRS  
FOOD AND DRUG ADMINISTRATION  
ROOM 15B42  
5600 FISHERS LANE  
ROCKVILLE, MARYLAND 20852

Current Levels for Natural or Unavoidable Defects in Food for  
Human Use That Present No Health Hazard

PRODUCT

DEFECT ACTION LEVEL

Chocolate & Chocolate Products

Chocolate & Chocolate Liquor

Average of 150 insect fragments per subdivisions of 225 grams or 250 insect fragments in any one subdivision of 225 grams. Average of 4 rodent hairs per subdivisions of 225 grams or 8 rodent hairs in any one subdivision of 225 grams. Shell in excess of 2% alkali-free nibs.

Cocoa Powder, Press Cake

Average of 150 insect fragments per subdivision of 100 grams or 250 insect fragments in any one subdivision of 100 grams. Average of 4 rodent hairs per subdivision of 100 grams or 8 rodent hairs in any one subdivision of 100 grams. Shell in excess of 2% alkali-free nibs.

Cocoa Beans

4% show mold or 4% insect infested or damaged or total of 6% show mold and insect infested.

Coffee Beans

10% or more by count are insect infested, insect damaged, or show mold.

Eggs & Frozen Egg Products

Dried Whole Eggs

Dried Egg Yolks

Decomposed as determined by direct microscopic count of 100,000,000 bacteria per gram.

Frozen Eggs & Other

Frozen Egg Products

Two cans contain decomposed eggs, and subsamples examined from can classed as decomposed have counts of 5,000,000 bacteria per gram.



PRODUCT

DEFECT ACTION LEVEL

Fish, Shellfish, & Seafood

Blue Fin and Other Fresh  
Water Herring

*Fish averaging 1 lb. or less:* 60 cysts per 100 fish provided that 20% of the fish examined are affected.

*Fish averaging over 1 lb:* 60 cysts per 100 lbs. of fish, provided that 20% of the fish examined are affected.

Rose Fish (Red Fish & Ocean Perch)

3% by count of the fillets examined contain one or more copepods.

Fresh & Frozen Fish

Definition of Classes of  
Decomposition

Class 1 - no odor of decomposition

Class 2 - slight odor of decomposition

Class 3 - definite odor of  
decomposition

1. 5% by count of fish or fillets in sample (but not less than 5) show class 3 decomposition over at least 25% of their areas; or,

2. 20% of the fish or fillets in the sample (but not less than 5) show class 2 decomposition over at least 25% of their areas; or

3. The percentage of fish or fillets showing class 2 decomposition as above, plus 4 times the percentage of those showing class 3 decomposition as above, equals at least 20 and there are at least 5 decomposed fish or fillets in the sample.

Fresh & Frozen Fish, as listed  
Tullibees, Ciscoes, Inconnus,  
Chubs and White Fish

50 cysts per 100 pounds (whole fish or fillets), provided that 20% of fish examined are infested.

Flours & Cornmeals

Corn

1. 20% of the subdivisions contain over 100 insect fragments per 50 grams or 2 insects or equivalent per 50 grams and an additional 20% of the subs show over 25 insect fragments per 50 grams or one insect or equivalent per 50 grams; or

2. 20% of the subs contains over 5 rodent pellet fragments per 50 grams and an additional 20% of these subs contain over 2 rodent pellet fragments or detached rodent hairs per 50 grams.

PRODUCT

DEFECT ACTION LEVEL

Fruit

Apricots (canned)

Average is 2% or more by count insect infested or insect damaged.

Caneberries (canned & frozen)  
(blackberries, raspberries, etc.)

*Frozen black raspberries:* Microscopic mold count average exceeding 60%.

*Insects:* Canned or frozen caneberries (blackberries, raspberries, etc.) average of 4 larvae per 500 grams or average of 10 larvae and insects per 500 grams (excluding thrips, aphids, and mites).

Cherries: Brined, fresh,  
canned, & frozen

1. *Brined & Marachino*--average of 5% rejects due to larvae.

2. *Fresh, canned or frozen*--average of 10% rejects due to rot.

3. *Fresh, canned or frozen*--average of 4% insect infested cherries.

Citrus Fruit Juices, canned

Microscopic mold count average exceeding 15%. *Drosophila* & other fly eggs--10 per 250 ml. *Drosophila* larvae--2 per 250 ml.

Currants

Average of 5% by count have larvae.

Figs

More than 10% by count insect infested and/or show mold and/or dirty fruits or pieces of fruit.

Lingon Berries (canned)

3 or more larvae per lb.

Multer Berries (canned)

Average of 40 thrips/No. 2 can.

Olives

*Pitted:* Average of 1.3% by count of olives with pit fragments 2 mm. or longer measured in the longest dimension exclusive of whole pits.

*Salad olives:* Average of 1.3 pit fragments per 300 grams, including whole pits and fragments 2 mm. or longer measured in the longest dimension.

*Salt cured olives:* Insect: Average of 15% by count of olives with 10 scale insects each, or, average of 25% by count of olives show mold.

PRODUCT

DEFECT ACTION LEVEL

Fruits Con't.

Olives Con't.

*Imported Black or Green:* Average of 10% by count wormy or worm-cut.  
*Salad Type:* Average of 12% by weight insect infested and/or insect damaged due to the olive fruit fly.

Peaches

Average of 5% wormy or moldy fruit by count or 4% if larva or equivalent is found in 20% of the cans.

Pineapples (canned, crushed)

Microscopic mold count average exceeding 30%.

Plums (canned)

5% by count of plums with rot spots larger than the area of a circle 12 mm. in diameter.

Prunes, dried

10% by count insect infested and/or show mold and/or dirty fruits or pieces of fruit.

Prunes, pitted

Average of 3% (by count) prunes with whole pits and/or pit fragments 2mm. or longer, and four or more of the 10 subs examined exceed 3% prunes (by count) with whole pits and/or pit fragments 2mm. or longer.

Raisins

*Mold:* Natural raisins average more than 5% by count that show mold.  
*Sand:* Average is more than 40 milligrams of sand and grit per 100 grams of natural or Golden Bleached raisins.  
10 or more insects or equivalent and 35 or more drosophila eggs per 8 ounces of Golden Bleached raisins.

Strawberries

Microscopic mold count average exceeding 55% and the mold count of 1/2 or more of the subsamples is more than 65%.

PRODUCT

DEFECT ACTION LEVEL

Grains

Popcorn

1. One rodent pellet in one or more subs upon examination of 10/225 gram subs or 6/10 oz. consumer size packages and one rodent hair in other subs; or
2. Examination shows two rodent hairs per pound and rodent hairs in more than half the subs; or
3. Examination shows 20 gnawed grains per pound, provided that rodent hairs are found in more than half the subs; or
4. Examination shows field corn in the popcorn exceeds 5% by weight.

Wheat

One rodent pellet per pint. 1% by weight of insect damaged kernels.

Jams, Jellies, Fruit Butters  
& Fig Paste

Apple Butter

Microscopic mold count average exceeding 12%.

*Rodent:* Average of more than 8 rodent hairs per 100 grams of apple butter.

*Insects:* Average of more than 5 insects or insect parts (not counting mites, aphids, thrips, scales) per 100 grams of apple butter.

Black Cherry Jam

Microscopic mold count exceeding 50% in the average of the subs.

Black Currant Jam

Microscopic mold count exceeding 75% in the average of the subs.

Fig Paste

Over 13 insect parts per 100 grams of fig paste in each of 2 or more subsamples.

Miscellaneous

Corn Husks (for tamales)

Over 5% by weight of the corn husks examined are insect infested (including insect damaged) or moldy.



Nuts

Tree Nuts

Nuts in Shell and Shelled Nuts

Reject nuts (rancid, moldy, gummy & shriveled or empty shells) determined by macroscopic examination in excess of the following limits:

<u>Unshelled Percent -</u>	<u>Shelled Percent</u>
Almonds 5%	Almonds 5%
Brazils 10%	Brazils 5%
Green Chestnuts 10%	Cashews 5%
Baked Chestnuts 10%	Dr. Chestnuts 5%
Filberts 10%	Filberts 5%
Pecans 10%	Pecans 5%
Pistachios 10%	Pistachios 5%
Walnuts 10%	Walnuts 5%
Lichee Nuts 15%	Pili Nuts 10%
Pili Nuts 15%	

Mixed Nuts in Shell - The percent of reject nuts for any one variety exceeds the above percentage for the same variety. The above limits apply for orchard type insect infestation.

Peanuts & Peanut Products

Peanuts, shelled & unshelled

Unshelled: Average more than 10% deteriorated or unsound nuts.

Shelled: Average more than 5% deteriorated or unsound nuts.

The shelled peanuts contain an average of 20 or more insects or equivalent per whole bag sifting (100-pound bag basis).

Peanut Butter

Average of 50 insect fragments per 100 grams, or average of 2 rodent hairs per 100 grams.

Grit: Gritty to the taste and the water-insoluble inorganic residue is more than 35 milligrams per 100 grams.

PRODUCT

DEFECT ACTION LEVEL

Spices

Allspices

Average of more than 5% moldy berries by weight.

Bay (laurel) Leaves

Average more than 5% moldy pieces by weight; or average more than 5% insect infested pieces by weight; or average of 1 milligram excreta per pound after processing.

Capsicum

Capsicum Pods: Average of more than 3% insect infested and/or moldy pods by weight, or average of more than 1 milligram of excreta per pound.

Capsicum Powder: Microscopic mold count average exceeding 20%; or average of more than 50 insect fragments per 25 grams; average of more than 6 rodent hairs per 25 grams.

Cassia or Cinnamon (Whole)

Averages 5% or more moldy pieces by weight; or averages 5% or more insect infested pieces by weight; or average of more than 1 milligram of excreta per pound.

Cloves

Average of more than 5% stems by weight.

Condimental Seeds other than  
Fennel Seeds & Sesame Seeds

Average of more than 3 milligrams of excreta per pound.

Cumin Seed

Average of more than 9.5% ash and/or more than 1.5% acid insoluble ash.

Curry Powder

Average of more than 100 insect fragments per 25 grams or average of more than 8 rodent hairs per 25 grams.

Fennel Seed

20% or more of subsamples contains excreta and/or insects or average of more than 3 milligrams of excreta per pound.

Ginger (Whole)

Averages more than 3% moldy and/or insect infested pieces by weight; or average of more than 3 milligrams of excreta per pound.

PRODUCT

DEFECT ACTION LEVEL

Spices Con't.

Hops

Average of more than 2500 aphids per 10 grams.

Leafy Spices, other than  
Bay Leaves

Averages more than 5% insect infested and/or moldy pieces by weight; or average of 1 milligram of excreta per pound after processing.

Mace

Average more than 3% insect infested and/or moldy pieces by weight; or average of more than 3 milligrams of excreta per pound; or average of more than 1.5% foreign matter through a 20-mesh sieve.

Nutmegs

Average more than 10% insect infested and/or pieces showing mold by count.

Whole Pepper, Black

Averages more than 1% insect infested and/or moldy pieces by weight; or average of more than 1 milligram of excreta per pound.  
Average of more than 1% pickings and siftings by weight.

Sesame Seeds

Average of more than 5% insect infested or decomposed seeds by weight; or average of more than 5 milligrams of excreta per pound; or average of more than 0.5% foreign matter by weight.

Vegetables

Asparagus, Canned  
or frozen

15% of spears by count are infested with 6 attached asparagus beetle eggs or egg sacs.

Beets, Canned

Pieces with dry rot exceed 5% by weight in the average of the subs.

Broccoli

Over 80 aphids or thrips/100 grams in the average of all subs examined.

Brussel Sprouts (frozen)

Average is more than 40 aphids and/or thrips per 100 grams.

PRODUCT

DEFECT ACTION LEVEL

Vegetables Con't.

Corn (Sweet, canned)

Examination of 24 pounds (24 No. 303 cans or the equivalent) shows the following:

Two 3 mm or longer larvae, cast skins, larval or cast skin fragments of corn ear worm or corn borer, and aggregate length of such larvae, cast skins, larval or cast skin fragments exceeds 12 mm.

Greens, Canned

Average of more than 10% of leaves by count or weight show mildew over 1/2" in diameter.

Mushrooms, canned

1. Average of over 20 larvae per 100 grams of drained mushrooms and proportionate liquid; or average of over five 2 mm. or longer larvae per 100 grams of drained mushrooms and proportionate liquid.

2. Mites - Average of 75 mites per 100 grams drained mushrooms and proportionate liquid.

3. Decomposition - Average of over 10% decomposed mushrooms.

Peas, Black-Eyed, Canned  
(cowpeas, field peas)

Average of 5 cowpea curculio larvae or the equivalent per No. 2 can.

Peas, Black-Eyed, Dried  
(cowpeas, field peas)

Average 10% or more by count insect damage.

Peas & Beans - Dried

Average more than 5% by count insect infested and/or insect damage by storage insects.

Spinach, canned or frozen

Canned Only: Average of more than 60 aphids per 100 grams of drained spinach, and 25% of the subsamples contain more than 100 aphids per 100 grams of drained spinach; or 2 spinach worms (caterpillars) of 5 mm. in length are present in 12 No. 2 cans.



PRODUCT

DEFECT ACTION LEVEL

Vegetables Con't.

Spinach, canned or frozen, Con't.

Canned or Frozen: If spinach leaf miners average over 9/100 grams with more than half the larvae over 2 mm. in length. Average of more than 10% leaves by count or weight show mildew over 1/2" in diameter.

Tomatoes & Tomato Products

Canned Tomatoes

10 fruit fly eggs per 500 grams of 5 fruit fly eggs and 1 larva per 500 grams or 2 larvae per 500 grams.

Tomato Juice

10 fruit fly eggs per 100 grams or 5 fruit fly eggs and 1 larva per 100 grams, or 2 larvae per 100 grams.

Tomato Puree

20 fruit fly eggs per 100 grams or 10 fruit fly eggs and 1 larva per 100 grams, or 2 larvae per 100 grams.

Tomato Paste, Pizza &  
Other Sauces

30 fruit fly eggs per 100 grams, or 15 fruit fly eggs and 1 larva per 100 grams, or 2 larvae per 100 grams.

Tomato Catsup

Microscopic mold count average exceeding 30%.

Tomato Juice

Microscopic mold count average exceeding 20%.

Tomato Paste or Puree

Microscopic mold count average exceeding 40%.

Tomato Sauce  
(Undiluted)

Microscopic mold count average exceeding 40%.

Canned Tomatoes, with or  
without added tomato juice

Microscopic mold count average of the drained juice exceeding 15%.

Canned Tomatoes Packed in  
Tomato Puree

Microscopic mold count average of the drained packing media exceeding 25%.

Pizza Sauce (Based on 6% Total  
Tomato Solids after Pulping)

Microscopic mold count average exceeding 30%.

Tomato Soup & Other  
Tomato Products

Microscopic mold count average exceeding 40%.

APPENDIX D

Pan American Airways Freight Rates,  
as of February 15, 1973

Saigon to San Francisco 1/

Minimum Charge, \$18

Under 100 lb.	\$2.15/lb.
100-220	1.60/lb.
220-440	1.45/lb.
440-660	1.29/lb.
660-880	1.09/lb.
880-1100	1.04/lb.
Over 1100 lb.	.94/lb.

Add-on: San Francisco to New York City

Under 100 lb.	\$ .36
Over 1100 lb.	.13

Pan Am Schedule: Saigon - San Francisco

- A. Flt. #876, A11 - Cargo 707, Service on Friday only.
- B. Flt. #842, Passenger/Cargo 747, Monday, Wednesday, Thursday, Friday.
- C. Space available on cargo flights, or cargo space on 747, varies from day to day. No daily average of "space available" can be obtained from the carrier.

1/ General cargo rate; actual weight and volumetric measure(s).

## APPENDIX E

### CLEANLINESS SPECIFICATIONS FOR UNPROCESSED SPICES, SEEDS, AND HERBS

(Foreign and Domestically Produced)

*Effective: August 1, 1971*

AMERICAN SPICE TRADE ASSOCIATION, INC.  
580 SYLVAN AVENUE  
ENGLEWOOD CLIFFS, N.J. 07632

#### FOREWORD

This is the first complete revision of the American Spice Trade Association's Specifications since their initial publication on June 23, 1969. The original Specifications identified as Import Specifications for Extraneous Matter became effective on August 1, 1969, the date of the 1969/1970 ASTA contract. The Specifications contained in this revision identify Specifications for Cleanliness for all Unprocessed Foreign and Domestically Produced Spices, Seeds, and Herbs.

These Specifications and their related requirements such as sampling, analysis etc., are intended to insure that spices, seeds and herbs as raw unprocessed agricultural commodities have been properly handled and stored so that they may be further processed into acceptable finished products for consumption at the Industrial, Food Service and Consumer levels.

In applying these Specifications to the everyday conduct of business, it is important to recognize that they are a supplemental part of the American Spice Trade Association's import contract.

All products listed in these Specifications, both foreign and domestic, must comply before they can be introduced into commerce for processing into a consumable product. Imported items must be shown to comply at port of entry. Domestically grown products must be shown to comply before they can be processed into a consumable product.

These Specifications establish limits only for extraneous matter which is removable by further processing under good manufacturing practices to place the product in condition for consumption. However, they do not define the total requirements of the Food, Drug and Cosmetic Act.

## CLEANLINESS SPECIFICATIONS

For purposes of these Specifications, extraneous matter is defined as everything foreign to the product itself and includes but is not restricted to stones, dirt, wire, string, stems, sticks, non-toxic foreign seeds, excreta, manure and animal contamination.

Cleanliness under these Specifications is indicated in the following table which shows the percentage of the product, as it is commonly known, that is free from extraneous matter. A lot must be reconditioned if it contains less than the following:

<u>Commodity</u>	<u>% of Product</u>	<u>Commodity</u>	<u>% of Product</u>
<u>Spices</u>		<u>Seeds</u>	
Black Pepper	99.0	Cardamom Seed, Decor.,	
White Pepper	99.0	Green & Bleached	99.5
Cassia	99.0	Anise Seed	99.0
Cinnamon	99.0	Coriander Seed	98.0
Capsicums (Chillies)	99.0	Cumin Seed	98.0
Nutmeg, Whole & Broken	99.5	Dill Seed, Natural	99.0
Mace	99.0	Dill Seed, Dewhiskered	99.0
Ginger, Peeled	99.0	Fennel Seed	98.0
Ginger, Unpeeled	99.0		
Cloves	99.0	<u>Herbs</u>	
Allspice (Pimento)	99.0	Sage Leaves	99.0
Turmeric	99.0	Oregano Leaves	99.0
		Basil Leaves	99.0
<u>Seeds</u>		Laurel (Bay) Leaves	98.0
Celery Seed	99.0	Thyme Leaves	98.0
Mustard Seed	99.0	Rosemary Leaves	98.0
Poppy Seed	99.5	Tarragon Leaves	98.0
Sesame Seed, Nat. &		Marjoram Leaves	99.0
Hulled	99.5	Chervil Leaves	99.0
Caraway Seed	99.0	Savory Leaves	99.0

A lot must also be reconditioned:

### RODENT EXCRETA

If more than two of the total number of subsamples show the presence of rodent pellets or any one subsample contains more than two pellets.

Exception: In the case of fennel seed, if 20% or more of the subsamples contain any animal excreta, the lot must be reconditioned. (For example, if two subsample of a ten unit sample each contains any animal excreta, the lot must be reconditioned.)



## OTHER EXCRETA

If more than two of the total number of these same subsamples show the presence of 50 mg. or more of other excreta, or an average of 10 mg. or more per pound for all subdivisions of the sample.

Exception: In the case of fennel seed, if 20% or more of the subsamples contain any animal excreta, the lot must be reconditioned.

## INSECTS

If more than two dead insects are found in each of two of the total number of subsamples. In no case shall there be more than four dead insects in the total number of these subsamples.

Exception: In the case of fennel seed, if 20% or more of the subsamples contain any whole insects, the lot must be reconditioned. (For example, if two subsamples of the ten unit sample each contains one whole insect, the lot must be reconditioned.)

Whenever a live insect or insects are found, the lot must be fumigated, sifted and blown. After fumigating, sifting and blowing, samples shall be drawn in accordance with Section 2, Procedures, A. Sampling, and reanalyzed, and a new Certificate of Analysis issued.

## MITES AND PSOCIDS

If it appears to the unaided eye that 50 or more mites and psocids are present and this is confirmed by the flotation test (Note: See Page 71), the lot must be fumigated, sifted and blown. Mites and/or psocids are not to be counted as insects.

## MOLD

If mold is present in excess of 5% by weight of the samples (except Nutmegs, Thin Quill Cassia and Black and White Pepper).

If the extent of mold and/or insect infestation by count in whole Nutmegs is in excess of 10%. With regard to broken and/or reconditioned Nutmegs, not more than 5% by weight may show evidence of mold and/or insect infestation. Nutmegs, whole or broken, with mold and/or insect infestation in excess of 25% may not be reconditioned.

If the extent of mold in Thin Quill Cassia is in excess of 10% by weight. The Cassia must be sampled and examined as received in its original imported form--it may not be altered in shape or form prior to being analyzed.

If the mold on whole White and Black Pepper is in excess of 1% by weight. A pepper berry is classified as moldy if it contains any mold visible to the naked eye.

## INSECT DEFILED

If the total sample quantity reveals the presence of 5% or more by weight of insect bored or otherwise defiled seeds, leaves or roots. A lot is considered defiled whenever a sample shows visible evidence of webbing or insect feeding.

## LIGHT BERRIES

### Black Pepper

If the light berries, though not considered extraneous matter, exceed 4% by weight.

## PROCEDURES

### SAMPLING

In sampling merchandise for analysis, the number of samples drawn must be equal to the square root of the packages, bags or containers in the lot with a maximum of fifteen samples drawn. Each lot, distinguished by specific chop marks and/or numbers must be sampled/analyzed separately. No commingling is permitted.

The sample size shall be one pound for the high density items. These include: Black and White Pepper, Cassia, Cinnamon (Seychelle), Nutmeg (Whole and Broken) Ginger, Cloves, Allspice, Pimento, Turmeric, Celery Seed, Mustard Seed, Poppy Seed, Sesame Seed, Caraway Seed, Cardamom Seed, Anise Seed, Coriander Seed, Cumin Seed, Dill Seed and Fennel Seed.

The sample size shall be a well filled two-pound paper bag for the low density items. These include: Chillies, Capsicums, Mace, Sage, Oregano Leaves, Basil Leaves, Laurel Leaves, Thyme Leaves, Rosemary Leaves, Tarragon Leaves, Marjoram Leaves, Chervil Leaves and Savory Leaves.

All samples shall be drawn by a recognized public sampler and shall be forwarded by him direct to an ASTA approved laboratory that is to make the analysis.

### RESAMPLING/REANALYSIS

No resampling or reanalysis is permitted except in those instances where fumigation and/or reconditioning has taken place (except Nutmegs).

EXAMINATION--EXTRANEIOUS MATTER--ALL SPICES, SEEDS, AND HERBS (EXCEPT NUTMEGS AND BLACK AND WHITE PEPPER)

The samples should be weighed and examined; a small amount at a time with good light against a white background. A moving belt or other mechanical device may be used if all the material can be readily seen.

Sifting may also be used if it would expedite the examination, but both the thoroughs and overs must be examined, picked out separately and reported on the Certificate of Analysis.

Rodent Excreta  
Other Excreta  
Insects  
Mites and Psocids  
Moldy Material  
Insect Defiled, Roots, Leaves and Seeds  
Other Extraneous Matter,  
Excluding Clove Stems

PEPPER--BLACK AND WHITE--EXTRANEIOUS MATTER AND LIGHT BERRIES

Apparatus

A standard pepper sieve (No. 9-1/2 round screen with a frame 18 to 22 inches in diameter and 2-3/4 inches in height. The bottom is a metal sheet perforated with round holes of 7/64 inch in diameter, with an average of 5-1/2 holes per linear inch. Obtainable from: W. R. Dell & Son, 15 Seething Lane, E. C., London, England; or Bryan Cocoran, Ltd., Westminster Bank Chambers, 130 Whitechapel, High Street, London, E. 1, 7 PR, England.)

Balance, with sensitivity of 0.01 g.

Beaker, Griffin low-form pyrex approximately 85 mm. in diameter and 120 mm. in height is recommended. Other transparent beakers may be used, but they should be between 75 and 100 mm. in diameter and between 100 and 140 mm. in height.

Blotting paper, towel, or other absorbent material.

Reagents

Alcohol-water solution of a specific gravity 0.80-0.82 at 25°/25°. The alcohol may be ethyl, denatured ethyl (See Note 1) or isopropyl.

Excreta, Insects, Mites and Psocids and Mold

Examine each one pound subsample and pick out material which is insect infested, moldy, animal contaminated and any rodent, bird, or animal excreta and report on the Certificate of Analysis. Do not remove other extraneous



matter at this time. The presence of mold may be verified by magnification, but the classification is determined without magnification.

### Extraneous Matter by Sifting

Combine sufficient material from each subsample to give a composite sample of approximately five pounds.

Remove two samples of two pounds each from the composite sample and weigh each subsample.

Screen each two-pound sample separately, using the standard screen. Shake the screen moderately or tilt it in such a manner that the material is passed back and forth across the surface so as to touch opposite sides of the frame for a total of ten passes or five in each direction.

Combine the siftings, weigh accurately and calculate the percentage by weight. Siftings must be calculated after removal of pinheads/light berries.

Extraneous matter by sifting:

$$\% = \frac{\text{Weight of combined sifting}}{\text{Combined weight of the two samples}} \times 100$$

Examine the siftings and record their nature.

### Extraneous Matter By Hand Picking

To determine extraneous matter not obtained by screening, combine the two sieved samples and spread the entire sample in successive small portions on a sheet of paper.

Hand pick for any sticks, stones, stems, foreign seeds and other extraneous matter and make a note of its nature.

Weigh the pickings and calculate as follows:

Extraneous matter by hand picking:

$$\% = \frac{\text{Weight of hand picked matter}}{\text{Combined weight of two samples}} \times 100$$

### Light Berry Determination For Black Pepper

Mix the entire pepper sample well after the sifting and the removal of extraneous matter by hand picking.

Quarter the entire sample and designate the quarters A, B, C, D, starting with any given quarter and proceeding in a clockwise direction.



Set aside separately two opposite quarters such as A and C.

Mix and reduce each quarter separately to ca. 50 g. by quartering.

Weigh a  $50 \pm 0.1$  g. sample from each reduced quarter.

Place the weighed sample in the 600 ml. Griffin, low-form pyrex beaker and add 300 ml. of the alcohol-water solution.

Stir the material in the beaker with a spoon and allow to settle two minutes; then spoon off the berries which float.

Repeat the stirring, settling and removal of the floating berries until two successive additional stirrings raise no more berries to the surface. Remove only the berries that actually float (See Note 2).

Blot the removed berries to free them from excess liquid and spread them out to dry on a piece of paper towel or other absorbent material.

Air dry for one hour and weigh the air-dried light berries to the nearest 0.01 g. and calculate and report the percent of light berries to the nearest 0.1% as follows:

Light berries:

$$\% = \frac{\text{Weight of lightberries (g.)}}{\text{Weight of sample (50 g.)}} \times 100$$

If the range of two determinations is not over 0.8%, the two determinations shall be averaged and reported as percent light berries. If the difference is greater than 0.8%, determine the light berries in a third sample obtained from either quarter B or D. Average all three values and report as percent light berries.

#### NOTES

1. Denatured alcohols, SDA No. 3A, No. 23A, or No. 30 are recommended. The composition of these alcohols is as follows:

SDA No. 3A. Five gallons of commercially pure methyl alcohol added to 100 gallons of ethyl alcohol.

SDA No. 23A. Ten gallons of U. S. P. acetone added to 100 gallons of ethyl alcohol.

SDA No. 30. Ten gallons of pure methyl alcohol added to 100 gallons of ethyl alcohol.

2. Some berries may remain suspended some distance below the surface of the liquid. These are not considered as floaters.

3. Certificate of quality shall be the basis for an allowance for excess over 2% of light berries.

#### NUTMEGS

Select at random at least 100 Nutmegs from the samples, break the Nutmegs so that by pressure the break occurs at the fissures. Otherwise, the Nutmegs are to be quarter cut. Examine the broken or cut surfaces of each Nutmeg for evidence of insects or insect damage and presence of mold filaments. Report as rejects Nutmegs containing insects or insect parts, excreta, insect channeling, and those showing mold filaments on 25% or more of the cut or broken surface of each. Check border-line or doubtful specimens--using magnification.

In the event the first examination of the entire composite sample reveals mold in excess of 25% and/or insect infestation, a second examination may be made at which time new samples may be drawn, double the size of the first sample, with the entire composited sample examined under the same procedure used for the first examination. The average of the combined results shall be considered as final. Report on the Certificate of Analysis the finding in the second analysis.

#### MITES AND PSOCIDS (FLOTATION METHOD)

Whole, Cracked, or Pieces of Allspice, Anise, Laurel (Bay Leaves), Caraway, Cardamom Seed, Celery Seed, Cinnamon (Cassia), Cloves, Coriander, Cumin, Dill Seed, Fennel Seed, Ginger, Mace, Mustard, Oregano, White Pepper, Pimento, Poppy Seed, Rosemary, Sage, Sesame Seed, and Turmeric, Chillies and Capsicums. Weigh 25 g. of a composite of all subsamples and proceed as below using larger beaker and more reagent if necessary.

Whole Basil, Chervil, Marjoram, Saffron, Savory, and Tarragon and Thyme. Weigh 25 g. of a composite of all subsamples into 400 ml. beaker and proceed as below, except use more reagent, and where necessary, 2 L trap flask, and add 400 ml. hot  $H_2O$  + 20 ml.  $HCl$ ; also use 35 ml. gasoline instead of 25 ml.

Transfer sample as prepared in one of the paragraphs above to 1 L trap flask. Add ca 150 ml.  $H_2O$ , heat to boiling, and simmer 15 min., with stirring; wash down inside of flask with  $H_2O$ ; and cool to  $<20^\circ$ . Add 25 ml. gasoline, mix thoroughly, and let stand 5 min.; then fill flask with  $H_2O$  and let stand 30 min. Stir every 5 min., trap off, and filter. Add to flask ca 15 ml. gasoline and mix thoroughly; trap off and filter second time after 15 min. If second extn yields appreciable quantity of filth, decant most of liquid from flask, add 15 ml. gasoline, and make third extn. Examine papers microscopically and count mites and psocids.

## LABORATORY METHODS

The laboratories found by the Association to be qualified to make the required macroscopic analyses have been published. The names and addresses of these firms and others that are subsequently added to the list, can be secured through the Association.

Procedures for analyzing various spices, seeds and herbs under these Specifications are derived from both the Association's Official Analytical Methods and the methods published by the Association of Official Analytical Chemists.

AOAC Methods are continually being updated, improved or replaced, and the reader should refer to each year's March issue of the Journal of the Association of Official Analytical Chemists to note any changes in methodology.

Those using the ASTA Methods are asked to make certain that they are using the Methods contained in the Second Edition.





